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Questionnaire forms were sent to 98,000 eleventh-grade students in 1960; 45,199 completed forms were returned. Of those respondents questioned, 91 percent graduated from high school and 1 percent expected to graduate later. After graduation 45.5 percent did not continue in any type of school, while 38.5 percent entered college. There were 7 percent more boys than girls in college. The other 16 percent entered technical institutes, nursing schools, business schools, and the armed forces. By 1962, 77 percent of these 11th graders who enrolled in college remained students; 23 percent had dropped out within the first two years. A total of 36% of these college students held jobs; 18 percent full time and 18 percent part time. There were 17 percent of the 11th-grade students who were married. One year after graduation 21 percent of the boys had been or were on active duty in the Armed Forces. Lists of career choices show the percentile of students choosing various careers.

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Project TALENT

Identification, Development and Utilization of Human Talents

Report of the Eleventh Grade Follow-up Study

Cooperative Research Project Number 635

John C. Flanagan, Responsible Investigator
William W. Cooley, Project Director

School of Education
University of Pittsburgh
15 April 1965

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of Education, U. S. Department of Health, Education, and Welfare.

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This report supplements our major report on Cooperative Research Project Number 635, The American High School Student.

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Chapter 1

Overview

This is one of a series of reports of progress on Project TALENT. Project TALENT is more formally called, the Identification, Development and Utilization of the Talents of American Youth. Planning for the study was initiated in 1957. In March 1960, 440,000 high school students representing a five per cent sample of students in the 9th, 10th, 11th, and 12th grades in the United States were tested with a two-day battery of achievement, aptitude, and information tests, and biographical and self-descriptive inventories. The reader is referred to previous reports in this series for descriptions of the tests, the selection of the sample of the schools, and the general procedure for processing the students' test results and preparing them on a tape suitable for collating with subsequent data using high-speed electronic computers. The present report describes the follow-up study of the students who were in the 11th grade when tested in March 1960. The follow-up study was initiated in the summer of 1962, one year after these students had been scheduled to graduate from high school. This is one of four such follow-up studies conducted one year after the class was scheduled to graduate from high school.

In the summer of 1962, each of the students who was in the 11th grade when he took the Project TALENT test in the Spring of 1960 was mailed a questionnaire. In most cases this was a four-page booklet,

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the first page containing a letter requesting his cooperation and reminding him of his participation in the Project TALENT testing in March 1960. The inside pages of the booklet contained a two-page questionnaire and on the back was a business reply form so that he could fold and mail the questionnaire directly back to the Project TALENT Office at the University of Pittsburgh.

All of the Project TALENT participants were requested to fill in the first page which included nineteen questions, and those who had attended college were asked also to fill in the second page containing an additional group of eight questions. These questions asked the young people whether they were married, whether they had a job, what types of schools they had been to, the nature of their military service, and the occupation or profession in which they planned to make a career. Questions were also included about college attendance and choice of major.

Replies to the mailed questionnaire were received from 21,000 boys and 24,000 girls, a total of 45,000 persons. Since it had been established that these respondents to the mailed questionnaire represented a somewhat biased sample of the total 11th grade group tested, these replies were supplemented by obtaining a random five per cent sample of the non-respondents who were then traced down and interviewed. Since nearly ninety per cent of the sample of non-respondents were located and interviewed, it is possible to correct for the biases inherent in the replies from the mailed questionnaire sample.

The Goals of Project TALENT

A large-scale, long-range study of this type can contribute many things to the study of the identification, development, and utilization of the talents of our youth. At the outset of the study five goals were identified as special goals of this study. The present report is concerned primarily with two of these goals. However, the follow-up data should eventually be valuable in contributing to all five of these goals.

The first goal was *an inventory of human resources*. It is of great importance that the nation knows in precise and detailed terms the capacities and potentials of its youth. Although the inventory has been reported in terms of scores on a variety of tests, the full meaning of this inventory can only be understood when these test scores are related to the subsequent performance of these students. It is of great importance that we know which scores represent transitory evidence regarding recent experiences and which are indicators of more permanent characteristics of these young people.

The second of these goals is *a set of standards for educational and psychological measurement*. Measures and scales which lack accurate relations to established benchmarks or standards are very difficult to interpret and can hardly provide the basis for sound educational and vocational choices on the part of the student. Although basic benchmarks in terms of national norms for precisely defined groups are now available, follow-up data are essential to the proper interpretation and effective use of these measures.

A third goal is *a better understanding of the educational experiences which prepare students for their lifework*. Although some findings have already been reported regarding this goal, it is clearly one which will require longer-range follow-up studies to interpret the values of the various educational experiences for specific later activities.

The data presented in Chapter 4 indicate some of the methods which may be valuable in carrying out studies of this type. This chapter compares socioeconomic data for the students' background and scores on a number of the tests with the various types of educational experience beyond high school selected by the students. The junior college students are found to resemble the four-year college and university students in terms of socioeconomic background but to be closer to the students for whom high school was the terminal formal school experience with respect to scores on ability and achievement tests.

It is planned that a socioeconomic index be developed which will enable each school to compare achievement of its students with the expected level as indicated by the average socioeconomic level of the students.

One of the goals to which the present report is making direct contributions is *a better understanding of how young people choose their lifework*. Systematic data were gathered in the high school regarding the students' counseling experiences and their educational and occupational plans at that time. These data have been reported elsewhere and will be only briefly treated here. There are in the ensuing chapters, however, a number of findings which should add substantially to our understanding of how young people choose their lifework.

Previous reports have shown that under present circumstances the student is forced to make a very important choice at the beginning of his high-school program. At this time in most schools he is required to select a college-preparatory, general, commercial, or vocational course. A substantial fraction of the top ten per cent in general academic aptitude fail to select a college-preparatory course when they enter high school. In most cases the high schools are successful in identifying and transferring to the college-preparatory course a large proportion of these students with high academic aptitude prior to graduation from high school. However, it is clear that this is not always done without some loss to the student.

In the present study, about eight per cent of the students tested in the 11th grade dropped out of high school before graduation. The drop-out rate for boys was about one per cent more than for girls. For the girls, the predominant reason given by about half of them was marriage. For the boys, it was failure to find the school program a rewarding one. It will take further analysis to determine how much of this was due to the failure of the school to provide for individual differences.

The results show that high school is becoming a terminal experience for only a minority of the students. Well over half of them went on to further schooling in colleges, junior colleges, technical institutes, schools of nursing, business schools, or other such institutions.

For many of the students this advanced schooling represented another important choice point, since for many the type of school or course selected pointed them toward a relatively specific occupational choice.

Of the students entering college, twenty-three per cent dropped out by the end of the first year. Here also the boys reported problems in adjusting to the school work and financial difficulties as the primary reasons for leaving college. For the girls, it was getting married and financial problems. Many of the girls and boys entered jobs their first year out of college which, they reported after some experience, they planned to make their career.

Probably the single most striking finding from this follow-up study is contained in Chapter 6 on Changes in Career Plans. In comparing the career plans of boys as stated when tested in Project TALENT in 1960 while they were in the 11th grade with the plans reported two years later, a year after they had left high school, it was found that only twenty-seven per cent were still planning the same career. Although the stability figures varied considerably from one career choice to another, only two fields, that of physician and that of clergyman, showed as high as fifty per cent of the original group still planning a career in the same occupation. The only other fields in which more than a third of the original choices were still planned were farmer, accountant, lawyer, and artist or entertainer. Fields having less than ten per cent continuing the same choice two years later included enlisted men in the Arm Forces, airplane pilot, medical or dental technician, and engineering or scientific aide.

The last of the five goals of Project TALENT, and in many ways the most important one, is _a comprehensive counseling guide indicating the patterns of aptitude and ability which are predictive of success in various careers_. It is obvious from the analyses reported herein and from previous data reported from Project TALENT that these students have been faced with choices they were not adequately prepared to make. Students cannot enter courses and schools for which they are unsuited without a substantial amount of frustration, failure, and wastage of time and effort, although Project TALENT has found that there are many factors going into an early stable choice of a career, or at least the identification of an appropriate group of careers, besides aptitude and prior achievement. However, in many of these fields a specific pattern of talent is a sine qua non.

Although it will be necessary to wait for the five-, ten-, and even twenty-year follow-up studies to obtain valid profiles for many types of careers, several occupations have been selected for special study in Chapter 5 of this report. The reported profiles are based on the scores made in the 11th grade by boys who, one year after graduating from high school, were working in a particular occupation and indicated that they planned to make it their career. Inspection of these profiles indicates that electricians, carpenters, machinists, mechanics, sales clerks, clerical workers, draftsmen, military servicemen, service workers, and unskilled laborers are reliably differentiated in terms of the profiles obtained for these groups. Confirmation of the fact that even such closely related jobs as accountants and businessmen are differentiated in terms of these aptitude and achievement measures is provided in the analyses presented in Chapter 6. The use of sophisticated multivariate analysis procedures of the type illustrated in this report is just one example of the great importance of large sample size and use of high-speed computers.

The findings reported in a recent bulletin regarding other groups, such as persons planning to be engineers, teachers, and nurses, must be interpreted with greater caution since the students have not yet completed training for and entered these occupations. It will be necessary to wait for the five-year follow-up to determine whether the girls entering teaching are as much higher than the boys on the various tests as appears in the groups planning teaching careers in this follow-up.

The important finding from this study is that the aptitude, achievement, and information tests and the interest scales of Project TALENT do have the power to discriminate among the many important occupations for which American boys and girls can prepare themselves.

The analyses reported in the following chapters should be regarded as preliminary to the analyses which will be based on the one-year follow-up studies for all four classes. This latter report should be available by September 1965.

Chapter 2

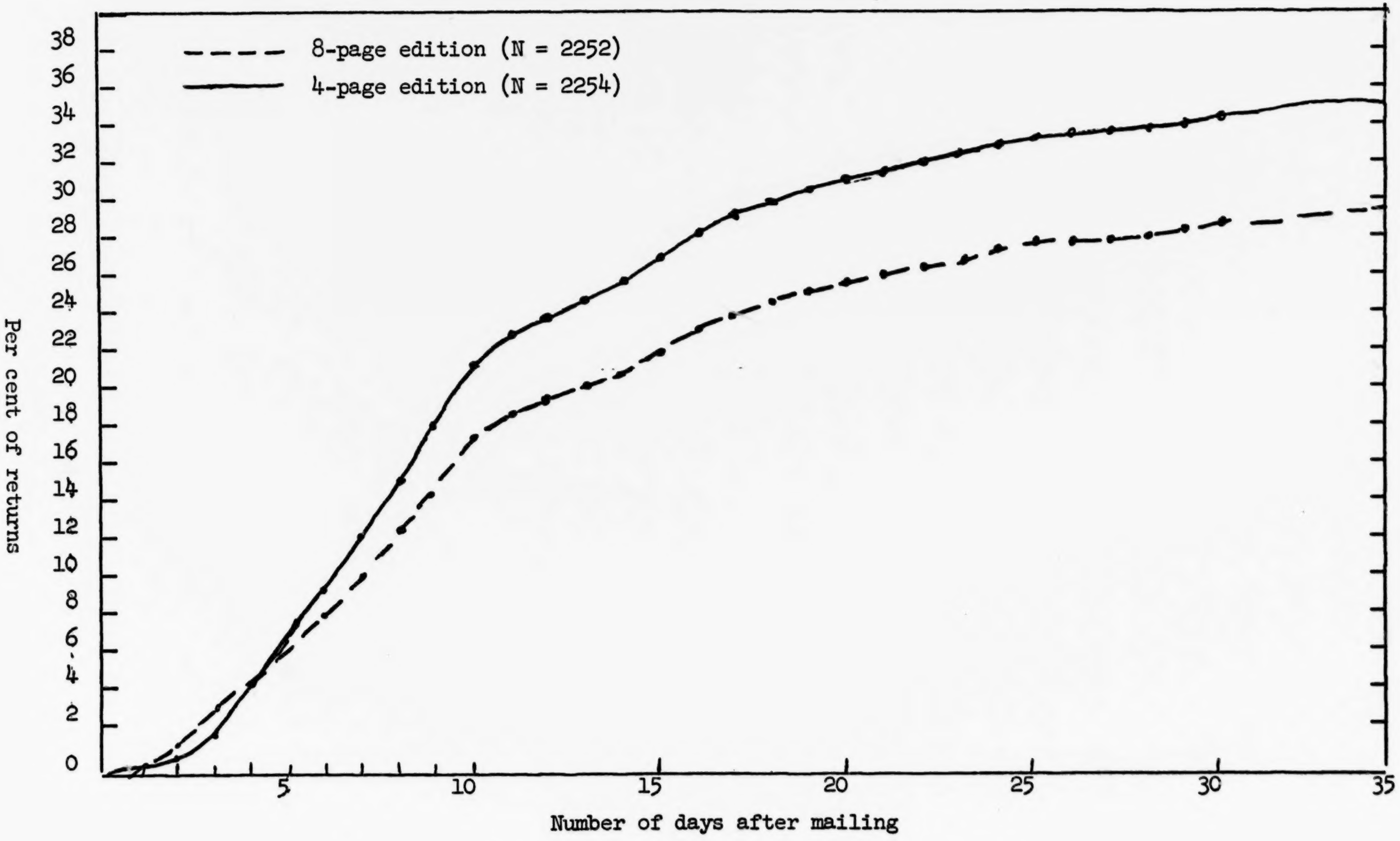
Follow-up Procedures

The Questionnaire Form

The 11th grade follow-up was the second in a series of four one-year follow-up studies. Because the mailed questionnaire is so important in the success of the follow-up, the decision was made to compare the response rate for an eight-page questionnaire with that of a four-page questionnaire. The former was similar to the questionnaire used in the 12th-grade follow-up, while the four-page questionnaire was a shortened version of it. (Forms 1-Ble and 1-Bla in Appendix A) Both questionnaires were sent to a small sample of the eleventh grade: 2,252 students received the eight-page questionnaire, and 2,254 received the four-page edition. Figure 2-1 illustrates the response rates for each of the forms.

A quick glance at this figure will show that the response rate for the four-page questionnaire was significantly greater than that for the eight-page questionnaire. On the basis of these data, it was decided that a four-page questionnaire would be used in the 11th-grade follow-up. However, editing of the questions on the eight-page questionnaire for transfer to a shorter form was done carefully so as not to eliminate those questions which were considered vital to the follow-up studies. A comparison of the final form, 1-B3a, with the eight-page

Figure: 2-1



Results of the 11th-Grade Experimental Mailing experimental form will indicate which questions were considered to be most vital. (Orr, David B. and Neyman, C.A., 1963)

Mailing of the Eleventh Grade Questionnaire

Table 2-1 illustrates the various steps involved in mailing out more than 98,000 questionnaires to the 11th-grade Project TALENT students. The questionnaire was sent out in three separate waves. Each wave employed the use of identical questionnaire forms, only the form code was changed for each of the three waves. Form 1-B3a in Appendix A was used in the first wave and is identical to each of the subsequent forms in the second and third waves.

As questionnaires were returned to the Project TALENT Office, they were sorted into three different classes: complete, incomplete with a new address, and incomplete with no forwarding address. All questionnaires returned to the Project TALENT Office were immediately recorded. In this procedure, a card was punched for each student indicating testing number, follow-up year (1, 5, 10, and 20), date received, sex, school code, date of birth, and the number assigned the questionnaire form returned, i.e., which of the three wave forms. In this way, the respondents for whom a completed questionnaire had been obtained could be eliminated from the mailer tape for future waves. Incomplete questionnaires returned by the post office with a new address were coded as such and the address changed on the mailer tape. It was hoped that this procedure would increase the rate of response as the questionnaire would be sent to the most recent address available.

Almost four weeks after the first mailing took place, a reminder card was sent to all the students in the first wave and to the non-

Table 2-1

Mailing Costs for the 11th-Grade Follow-Up Questionnaire

Mailing	Median Mailing Date	Number Mailed	Mailing Cost per Addressee[a]	Reply Cost per Respondent[b]
Experimental Mailing				
Form 1-Ble: 8-page quest.	9 April	2,252		
Form 1-Bla: 4-page quest.	9 April	2,254		
TOTAL COST OF MAILING	(1962)		$ .263	$ .139
1st Mailing of Regular Form				
1st questionnaire	21 May	98,580	.081	.139
1st reminder card	11 June	101,728	.02	---
TOTAL COST OF MAILING			$ .101	$ .139
2nd Mailing				
2nd questionnaire	15 Aug.	69,405	$ .087	$ .139
2nd reminder card	29 Aug.	69,405	.024	---
TOTAL COST OF MAILING			$ .111	$ .139[c]
3rd Mailing				
3rd questionnaire	29 Oct.	53,476	$ .052	$ .159[d]

[a] The cost per addressee includes printing and postage costs.

[b] The cost per respondent includes postage and keypunching of JA and JB cards.

[c] Both the first and second waves were sent third-class mail with no return guarantee ($.06)

[d] Part of the third wave was sent first-class with return requested ($.08)

respondents to the experimental forms of the questionnaire. Figure 2-2 illustrates the cumulative response rate for the regular questionnaire by week received. The response rate began to level off during the fourth week after the questionnaire mailing but rose slightly about one week after the reminder card was mailed. By the end of the seventh week the response rate had again leveled off showing that the total per cent of returns from the first wave was about 78 per cent.

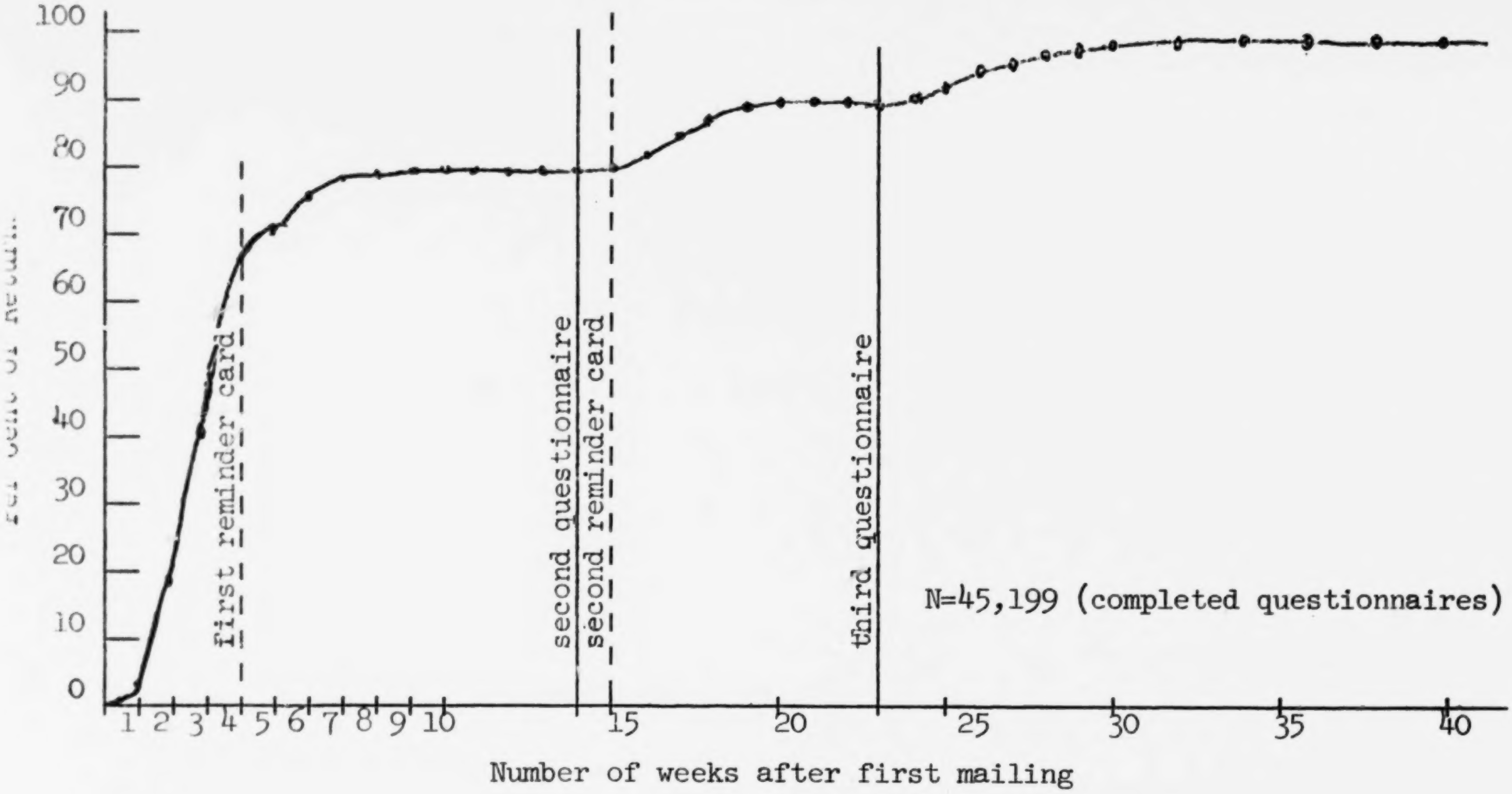
During the middle of August the second wave of questionnaires was mailed. This wave included only those students who had not responded to the first questionnaire and was also followed by a reminder card. Again by referring to Figure 2-2 it can be shown that about 12 per cent of the respondents returned their questionnaires during the second mailing.

The final wave of 11th-grade questionnaires was sent out at the end of October, 1962. Within the next 15 weeks the remainder of the respondent sample had returned questionnaires. Only 1 per cent of the completed questionnaires were returned after the 40th week.

It is important to mention that there was a great deal of overlap between the various waves of questionnaires. Even after the second wave was sent, first-wave questionnaires continued to be sent back by the students. The same was true for both the first- and second-wave questionnaires after the third mailing. This is best explained by the fact that the time element involved in completing the collection of follow-up data made it prohibitive for the staff to wait for everyone who had received a questionnaire to answer before the next successive wave was sent out. Many students may have used the second or third questionnaire as a reminder to send back the previous questionnaire.

Figure: 2-2

Cumulative Per Cent of Total Respondents by Week Received



There were also a few students who sent back duplicate copies of the questionnaire during the second and third waves. (Only one of the completed questionnaires is maintained on the computer tape file.) It is evident that the largest number of responses was received during the first five weeks of the follow-up. Only about twenty per cent of the total number of completed questionnaires was received during the second and third mailings.

Column 4 in Table 2-1 gives the cost per addressee for each of the three waves of questionnaires. The costs for both the questionnaire and the reminder card include postage and printing. Postage costs, keypunching, and verifying are included in the cost per respondent. Clerical costs are not included in either the cost per addressee or the cost per respondent. Were staff time and clerical costs included in these figures, the cost per respondent would be considerably higher--caused by the time involved in rostering changes of address as well as coding the questionnaires for the computer.

As would be expected, not all of the students in the 11th-grade responded to the mailed questionnaire. In order to obtain a more complete picture, it was necessary to conduct a special survey of the non-respondents. This survey will be discussed more fully in the next section of this chapter.

A Special Survey of 11th-Grade Non-Respondents

A survey of the non-respondents is an important part of the follow-up. Usually there are some major differences between the respondents and the non-respondents which could result in biased analyses if no effort were made to discover the characteristics of the non-respondent group. The bias itself will be discussed fully in Chapter 3; however, in order to correct this bias, a five-per-cent sample was taken of the 11th-grade non-respondents. To equate the results of this special survey with the regular follow-up study, it is necessary to apply the appropriate weights and multiply the results by 20. Under these circumstances it is desirable that we obtain as many completed questionnaires as possible from the non-respondent sample. The questionnaire for the 11th-Grade Special Survey was a shortened form of the regular four-page questionnaire. A comparison can be made by referring to Appendix A, questionnaire Form 1-B4a.

On March 23, 1964, a letter was written to the principals of all Project TALENT high schools requesting their assistance in this special survey. Enclosed with this letter were: (1) a list of former students about whom information was needed, (2) a questionnaire for each student, (3) a set of instructions for carrying out this survey, and (4) a self-addressed stamped envelope for returning the materials to Project TALENT. The principals were requested to do most of the follow-up work by telephone unless a personal interview was feasible. The schools were not to contact anyone who had moved outside a radius considered reasonable for a telephone follow-up. For those students whom they could not contact, the schools were asked to fill in any information from the records that would be helpful in locating the student; such as, birth date, graduation, new address, marriage, etc. The deadline date for the schools was May 1, 1964. They were able to complete 40 per cent of the non-respondent sample.

Late in May of 1964 letters were sent to Regional Coordinators located throughout the United States. Their assistance was needed in locating those students for whom the schools had not been able to complete questionnaires. Most of the Regional Coordinators are affiliated with universities and colleges; they are personally interested in Project TALENT and put a great deal of time and effort into the location of the non-respondent group. (Regional Coordinators are listed by state at the end of this chapter.) Sixty per cent of the sample remained after the school follow-up for the Regional Coordinators. They were able to locate about 65 per cent of the students for whom they received questionnaires, or about 38 per cent of the entire non-respondent sample.

During the summer months and into the fall, the Regional Coordinators continued to return their materials. In some cases it was necessary to reassign a student to a Coordinator in another part of the United States. However, the number of cases involved in reassignment only amounted to about 30 out of 1700. Further follow-up was needed for those students not located by either the Regional Coordinators or the schools. In order to locate as many of the 500 remaining students as possible, Project TALENT used the services of the Retail Credit Company. Because of the manpower available to Retail Credit and the possibility that some of the non-respondents were already in the Retail Credit files for a variety of reasons, they were able to locate more than 50 per cent of the questionnaires sent to them, about 10 per cent of the sample.

Evaluation of the Follow-up Procedures

The total number of completed questionnaires for the non-respondent study was 3,000 (89 per cent return). The 11th-grade non-respondents that could not be located were a result of addresses on the mailer tape that were at least three years old. In many cases the post office had no forwarding address and the individual had to be traced through friends and relatives. This type of situation becomes acute when no father's name is available, and especially in areas where there are many military personnel who are frequently transferred. When no friends or relatives can be located, and when the high school has no record of having sent a transcript to another high school or college, it becomes almost impossible to locate the students.

The problem of locating new addresses will become more acute during the five-year follow-up studies, and has become increasingly difficult in each of the successive one-year studies. Although students have been requested to notify Project TALENT of a change in address, the large majority of the students has not followed this procedure. In the future it may be necessary to make a special effort to obtain new addresses for as many students as possible before mailing the questionnaires. However, since the mailed questionnaire and the non-respondent study brought responses from approximately one half of the 11th-grade students, the situation has not yet reached a sufficiently critical level to warrant such an effort. At the present time the lack of a most recent address has caused a continual decrease in the number of respondents, and will undoubtedly be investigated further in future follow-up studies.

Regional Coordinators for the 11th-Grade Special Survey

Alabama
Ralph M. Roberts, University of Alabama, University

Arizona
Richard E. Schutz, Arizona State University, Tempe

Arkansas
Arthur L. Henze, Arkansas State Teachers College, Conway

California
Alex D. Aloia, Loyola University of Los Angeles
Edwin L. Klingelhofer, Sacramento State College

Colorado
Anthony C. Tucker, University of Denver

District of Columbia
C. A. Neyman, Jr., George Washington University

Florida
Melvene D. Hardee, Florida State University, Tallahassee
John V. McQuitty, University of Florida, Gainesville
Annie W. Ward, Volusia County School, DeLand

Georgia
R. T. Osborne, University of Georgia, Athens

Illinois
Elizabeth Jacka, National Merit Scholarship Corporation, Evanston
Alfred L. Brophy, University of Illinois, Urbana

Indiana
Claude F. Bridges, De Pauw University, Indianapolis

Iowa
Gordon J. Rhum, Iowa State Teachers College, Cedar Falls

Kansas
Harry M. Mason, Kansas Wesleyan University, Salina

Louisiana
Edward F. McLaughlin, McNeese State College, Lake Charles

Maryland
Robert C. Lloyd, Baltimore Public Schools

Massachusetts
Paul McIntire, Boston University
John J. Walsh, Boston College

Michigan
    Claude L. Nemzek, University of Detroit

Minnesota
    Raymond G. Johnson, Macalester College, St. Paul

Mississippi
    Ray S. Musgrave, University of Southern Mississippi, Hattiesburg

Missouri
    Robert H. Lefton, Psychological Associates, Clayton

Montana
    William A. Garrison, Eastern Montana College, Billings

Nebraska
    Warren Baller, University of Nebraska, Lincoln

New Jersey
    Saint Peter's College, Jersey City

New York
    John M. Skalski, Fordham University, New York City

North Carolina
    William D. Perry, University of North Carolina, Chapel Hill

Ohio
    Henry Loess, College of Wooster
    Howard B. Lyman, University of Cincinnati
    Walter Nosal, John Carroll University, Cleveland

Oklahoma
    W. R. Brown, University of Oklahoma, Norman

Oregon
    Milton K. Davis, Northwest Psychological Services, Portland

Pennsylvania
    Joseph L. French, Pennsylvania State University, State College
    C. Mauritz Lindvall, University of Pittsburgh
    John A. Mierzwa, University of Pennsylvania, Philadelphia

South Carolina
    Donna S. Young, University of South Carolina, Columbia

Tennessee
    Louise W. Cureton, Knoxville

Texas

Robert P. Anderson, Texas Technological College, Lubbock
Saul B. Sells, Texas Christian University, Fort Worth
Franklin L. Stovall, University of Houston
David F. Votaw, Sr., San Marcos

Utah

F. B. Jex, University of Utah, Salt Lake City
O. Ray Warner, Department of Public Instruction, Salt Lake City

Virginia

Donald J. Herrmann, College of William and Mary, Williamsburg

Washington

William C. Budd, Western Washington College of Education, Bellingham

West Virginia

Kenneth Loemker, Marshall University, Huntington

Wisconsin

Robert C. Craig, Marquette University, Milwaukee

Chapter 3

Results of the Follow-Up Questionnaires

How many of the eleventh-graders tested in 1960 dropped out of high school?

How many students went on to college?

What kinds of jobs were held by those employed one year after graduation?

How many of these young adults were married within one year after finishing high school?

The eleventh grade follow-up questionnaires were designed to provide answers to questions such as these about the activities of students one year after high-school graduation. In the first section of this chapter, these activities will be discussed using results from both the mailed questionnaire and the special non-respondent questionnaire, properly weighted so that unbiased estimates of all 11th graders have been achieved. These estimates are based on 48,000 students.

As mentioned in the previous chapter, the mail respondents constituted a biased sample of the entire eleventh-grade population. The last section of this chapter shows ways in which this sample was biased by comparing certain responses to the mailed questionnaire with responses to the special questionnaire.

High School Graduation

Of the 11th graders tested in 1960, 91 per cent graduated from high school. An additional 1 per cent were still in high school while the follow-up study was being conducted, but expected to graduate later.

Thus, 8 per cent of the 11th grade students dropped out of high school either at the end of their junior year or during their senior year. The percentage is slightly higher for boys (8.4 per cent) than for girls (7.1 per cent). As shown in Table 3-1, the most common reasons given for dropping out were marriage, a job, failing grades, and dislike of school. Over one-half the girls who left school gave marriage as the reason. Of the boys who dropped out, 44 per cent explained that they didn't like school, had failing grades, or had been asked to leave. Only 15 per cent of the girls left school for these reasons.

Education after High School

After graduation 45.5 per cent of the 11th grade students did not go on to any type of school (Figure 3-1). Seven per cent more girls than boys had no further schooling. But as this chart also shows, 38.5 per cent of the 11th graders entered college after graduation, 31 per cent in colleges offering a bachelor's degree or higher and 7.5 per cent in junior or community colleges. Seven per cent more boys than girls were college students. The other 16 per cent who went on to school enrolled in technical institutes, schools of nursing and practical nursing, business schools, trade or apprentice schools, Armed Forces enlisted man's schools, or some other institution. Seven per cent of the boys went to an Armed Forces enlisted man's school, 3 per cent to a technical institute, and 2 per cent to a trade or apprentice school. Of the girls, 6 per cent enrolled in a business school, 3 per cent in a hospital school of nursing (three-year program), and 2 per cent in a

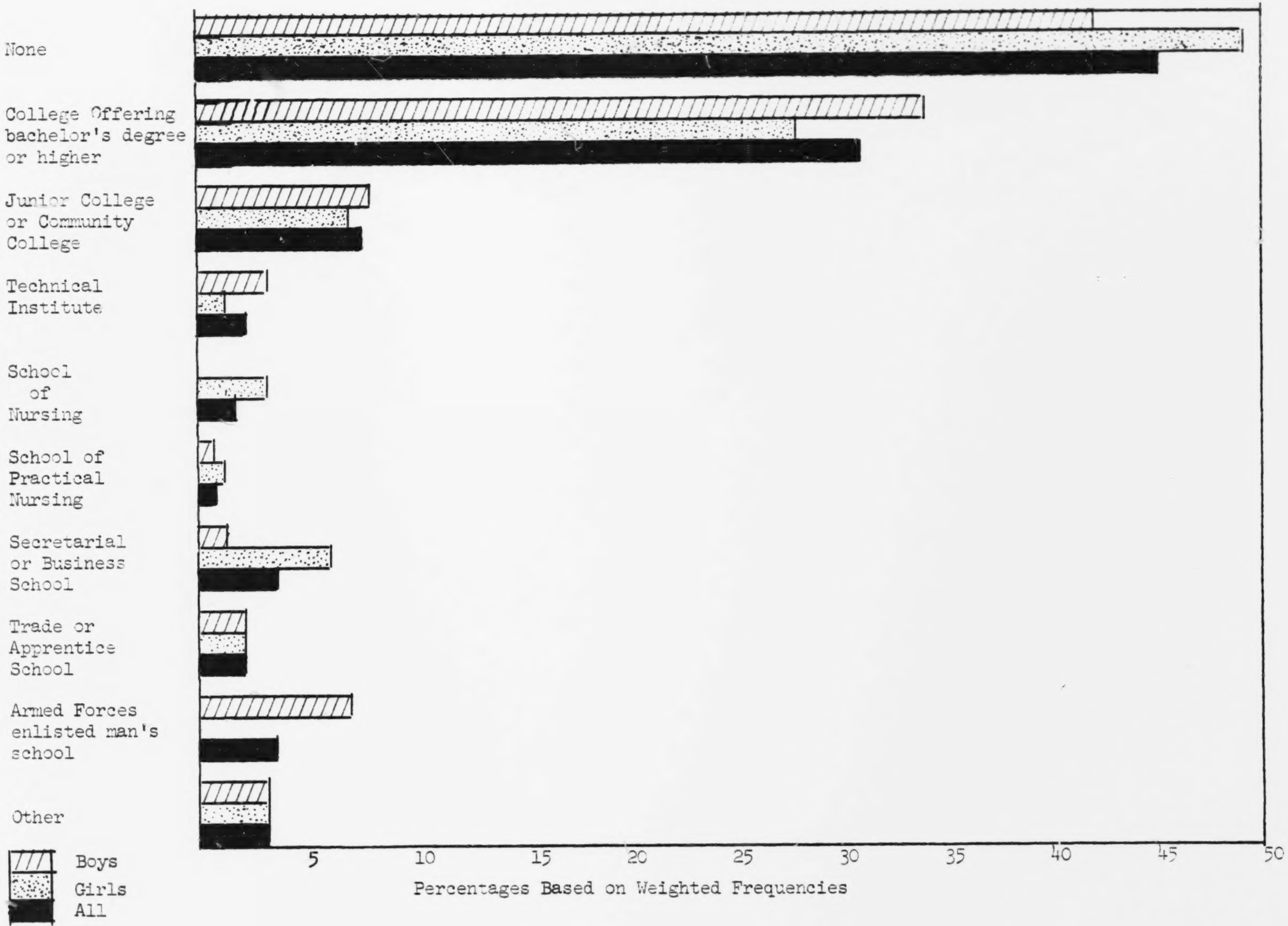
Table 3-1

WHY DID YOU DROP OUT OF HIGH SCHOOL?

(Percentages Based On Weighted Frequencies)

	Boys	Girls	All
To get a job	17.9	13.5	15.8
Became ill	1.8	2.5	2.2
Needed at home	5.5	1.7	3.7
Got married	4.7	53.1	27.5
Didn't like school	18.1	6.3	12.6
Had failing grades	21.0	8.0	14.7
Was asked to leave	4.5	1.0	2.9
Other reason	26.5	13.9	20.6
Total	100.0	100.0	100.0

EDUCATION AFTER HIGH SCHOOL?



trade or apprentice school.

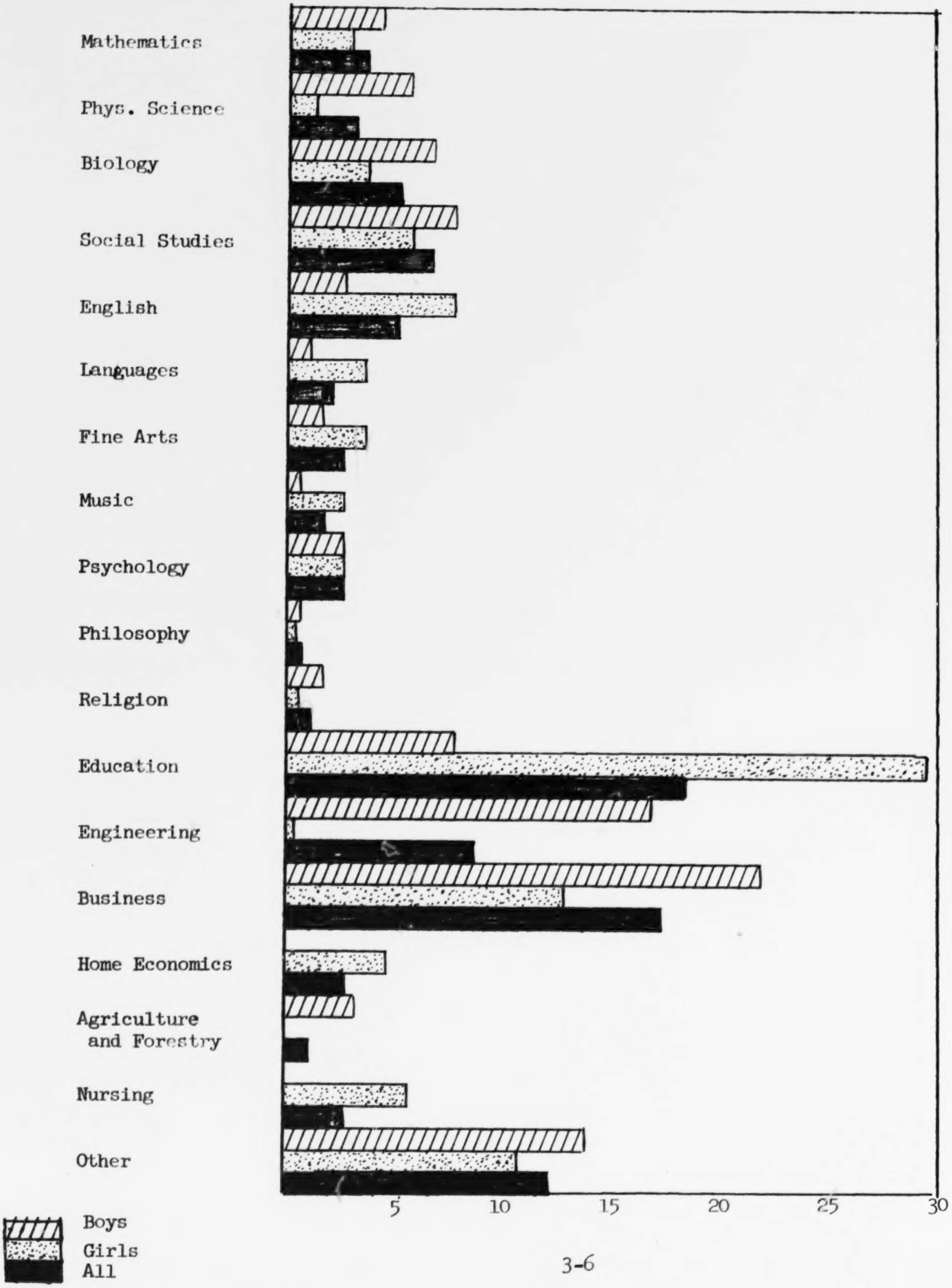
Of the college students, 90 per cent entered in the fall of 1961, the fall after graduating from high school. Only 6 per cent started school before that date. The remaining 4 per cent of the students entered college in the summer of 1962, one year after completing high school.

Although students are not usually required to declare a major in their freshman year, the follow-up questionnaire did ask the student to specify the field in which he intended to specialize. As Figure 3-2 indicates, 13 per cent decided to major in the natural sciences (mathematics, physical science, biology), 13 per cent in the humanities (English, languages, fine arts, or music), and 12 per cent in the social sciences (social studies, psychology, philosophy, or religion). Education was chosen by 18.5 per cent of the students; business by 17.5 per cent; engineering by 9 per cent. The remaining students majored in home economics, agriculture and forestry, nursing, or some other field.

Sex differences are evident in the areas of specialization chosen. Only 8 per cent of the girls decided to major in the natural sciences, while 17.5 per cent of the boys chose this area. In contrast, 19 per cent of the girls selected the humanities, while only 7 per cent of the boys made the same choice. The differences in the area of social studies are not so marked. Fourteen per cent of the boys and 10 per cent of the girls chose this field.

Figure 3-2

COLLEGE MAJOR?
(Percentages Based on Weighted Frequencies)



Boys and girls also differed in the specific majors they indicated. Twenty-nine per cent of the girls planned to major in education. Only 8 per cent of the boys made this choice. In business and engineering the reverse was true. Twenty-two per cent of the boys compared to 13 per cent of the girls selected business as a major, while 17 per cent of the boys compared to .5 per cent of the girls planned to major in engineering. None of the girls chose agriculture and forestry, just as none of the boys chose nursing or home economics as their major field.

In the spring of 1962, 77 per cent of the 11th-grade students who had entered college were still enrolled. In other words, 23 per cent had dropped out within the first year. The percentages are approximately the same for both boys and girls. As Table 3-2 shows, the explanations most often mentioned by the boys were financial difficulties and failure, while marriage was the reason most often given by the girls.

Jobs and Careers

Of the students who entered college, 36 per cent also held jobs, 18 per cent full-time and 18 per cent part-time. Figure 3-3 shows that 41 per cent of the boys were employed compared to 32 per cent of the girls.

Of the non-college students, 72 per cent held jobs, 64 per cent full-time and 8 per cent part-time. Thus, 28 per cent of the boys and girls who had not gone on to college had no job, 38 per cent of the girls and 18 per cent of the boys. It must be noted, however, that some of these non-college students without jobs were enrolled in technical institutes, nursing schools, business schools, or some other type of school.

Table 3-2

WHY DID YOU DROP OUT OF COLLEGE?

(Percentages Based on Weighted Frequencies)

	Boys	Girls	All
Offered Good Job	4.0	6.0	5.0
Became Homesick	0.2	0.9	0.5
Didn't Enjoy Social Life	0.6	0.6	0.6
Got Married	1.3	14.4	7.4
College Work Boring	4.9	1.6	3.4
Had To Study Too Hard	4.1	1.9	3.1
Afraid Of Failure	3.6	2.3	3.1
Failed	12.7	4.9	8.9
Financial Difficulties	14.2	10.0	12.2
Became Ill	2.2	3.5	2.7
Family Emergency	1.3	2.0	1.6
Other Reason	21.4	15.7	18.7
No Reason	29.5	36.2	32.8
Total	100.0	100.0	100.0

Figure 3-3

DO YOU HAVE A JOB?

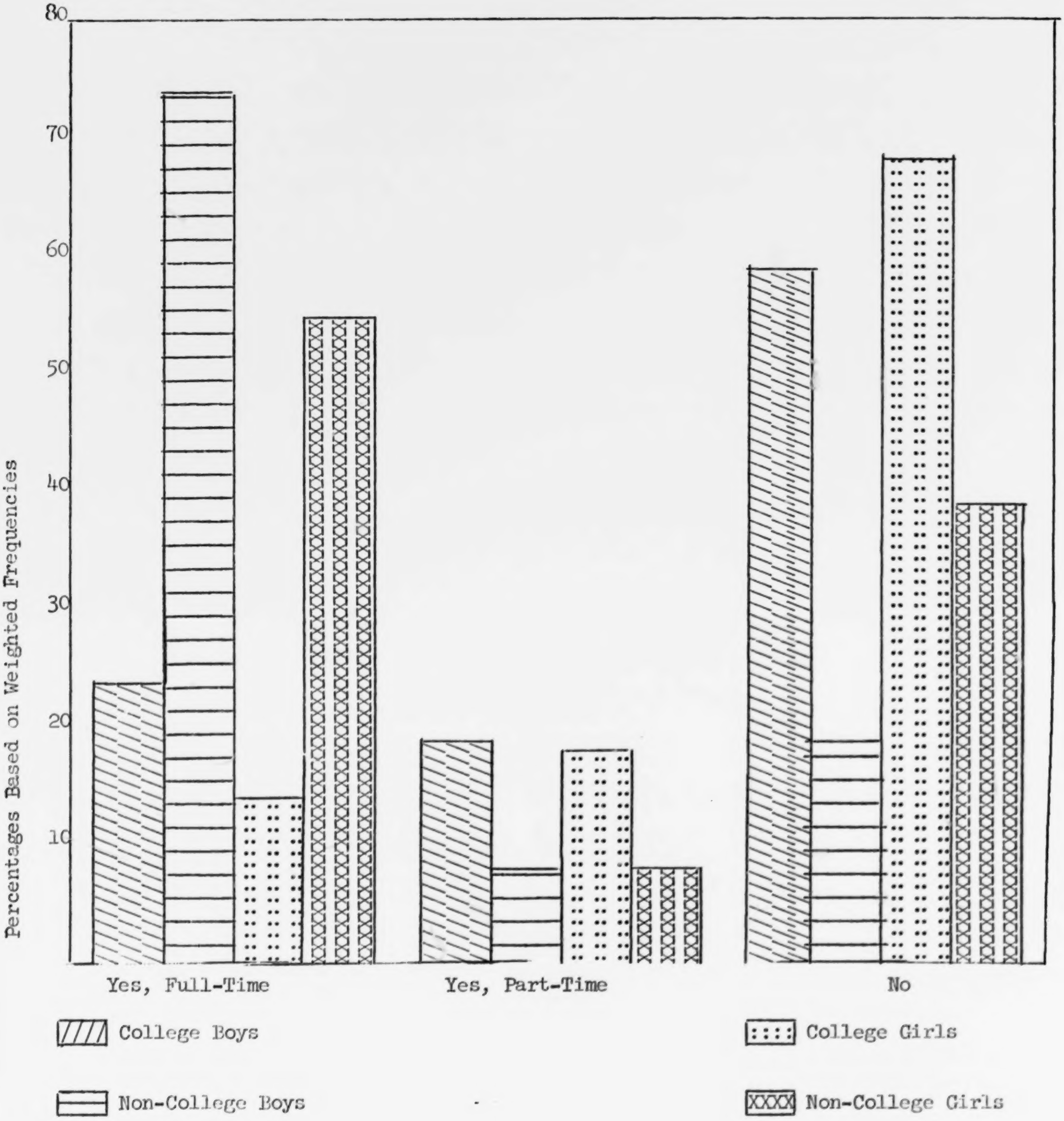


Table 3-3 shows the kinds of jobs held by students one year after high-school graduation. The largest percentages of boys worked as clerical workers (17.5 per cent), farm or other laborers (16.2 per cent), skilled workers (11.6 per cent), or service workers (11.4 per cent). Of the girls, 28.8 per cent were stenographers, secretaries, or typists and 21.7 per cent held jobs as telephone operators or clerical workers. Although sex differences are evident in these occupations, the percentages of boys and girls working as service workers and sales personnel are similar.

The career plans of this group one year after high school are shown in Table 3-4. Of the boys, 13.3 per cent planned to be skilled workers; 9.2 per cent, engineers; 7.9 per cent, businessmen. Smaller percentages planned careers as teachers or librarians (4.8 per cent), military men (4.5 per cent), or structural workers (4.4 per cent). The largest percentages of girls chose to be stenographers, secretaries, or typists (21.5 per cent), while 17.9 per cent planned careers as teachers or librarians. Other girls planned to work as telephone operators or clerical workers (7.8 per cent), service workers (7.7 per cent), or nurses (5.0 per cent).

As might be predicted from the differences in post-high-school education shown in Figure 3-1, 45 per cent of the boys chose careers as professional or technical workers, while only 37 per cent of the girls made the same choice.

Marriage

To the question "Are you married?" 17 per cent of all 11th grade students answered, "Yes," 9 per cent of the boys and 24 per cent of the girls. Four per cent of the students had married while in high

Table 3-3

WHAT IS YOUR JOB?

(Percentages Based on Weighted Frequencies)

	Boys	Girls	All
Accountant	0.4	0.3	0.3
Businessman	2.0	0.8	1.5
Teacher, librarian	0.2	0.6	0.4
Social or behavioral scientist	0.1	0.1	0.1
Artist, entertainer photographer	1.1	0.4	0.8
Policeman, fireman	0.6	0.0	0.3
Bookkeeper, cashier, tab or keypunch operator	1.9	7.1	4.5
Telephone operator, other clerical	17.5	21.7	19.6
Stenographer, secretary, typist	0.8	28.8	14.6
Service worker	11.4	12.7	12.0
Agent, broker, dealer	0.8	0.3	0.5
Sales clerk, other sales personnel	8.3	10.0	9.1
Engineering or scientific aide	1.9	0.2	1.0
Medical or dental technician	0.5	1.6	1.1
Domestic	0.1	3.4	1.7
Farmer	2.5	0.1	1.3
Skilled worker	11.6	0.3	6.0
Farm or other laborer	16.2	4.0	10.2
Structural worker	8.2	0.2	4.3
Some different occupation from above	13.9	7.4	10.7
Total	100.0	100.0	100.0

Table 3-4

WHICH OCCUPATION DO YOU INTEND TO MAKE YOUR CAREER?

(Percentages Based on Weighted Frequencies)

	Boys	Girls	All
Biologist, veterinarian	1.8	0.5	1.2
Mathematician	0.4	0.4	0.4
Physical scientist	1.9	0.2	1.1
Engineer	9.2	0.0	5.0
Architect	0.9	0.1	0.5
Dentist	1.3	0.0	0.7
Pharmacist	0.3	0.1	0.2
Physician	2.3	0.7	1.5
Nurse	0.0	5.0	2.3
Accountant	4.2	1.0	2.8
Businessman	7.9	2.0	5.2
Teacher, librarian	4.8	17.9	10.8
Lawyer	3.1	0.1	1.7
Clergyman	1.9	0.7	1.3
Political scientist	0.3	0.3	0.3
Social worker	0.1	1.2	0.6
Social or behavioral scientist	0.9	2.3	1.6
Artist, entertainer, photographer	3.6	3.1	3.4
Writer	0.4	1.0	0.7
Armed Forces	4.5	0.1	2.5
Policeman, fireman	1.9	0.1	1.1
Bookkeeper, cashier, tab or keypunch operator	1.5	3.4	2.4
Telephone operator, other clerical	1.6	7.8	4.5
Stenographer, secretary, typist	0.3	21.5	10.1
Service worker	1.6	7.7	4.4
Agent, broker, dealer	1.2	0.1	0.7
Sales clerk, other sales personnel	1.5	0.7	1.1
Engineering or scientific aide	2.4	0.3	1.4
Medical or dental technician	0.5	3.2	1.7
Airplane pilot	0.3	0.0	0.1
Domestic	0.0	0.2	0.1
Farmer	3.4	0.1	1.9
Skilled worker	13.3	0.2	7.2
Farm or other laborer	2.3	0.8	1.6
Structural worker	4.4	0.1	2.4
Some different occupation from above	14.0	17.1	15.5
Total	100.0	100.0	100.0

school; 13 per cent had married later. For the college students the percentages are smaller (Table 3-5). Only 3.4 per cent of the boys and 4.5 per cent of the girls were married one year after graduating from high school.

Table 3-5

ARE YOU MARRIED?

	Non-College (Percentages Based on Weighted Frequencies)			College (Percentages Based on Weighted Frequencies)		
	Boys	Girls	All	Boys	Girls	All
Yes, while in h. s.	3.1	6.9	5.1	0.8	0.3	0.5
Yes, after h. s.	10.2	27.5	19.7	2.6	4.2	3.4
No	86.7	65.6	75.2	96.6	95.5	96.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

It should be noted, however, that 30 per cent of the non-respondent questionnaires did not have an answer to this question compared to less than 1 per cent of the regular questionnaires. These combined data, therefore, may be slightly misleading.

Armed Forces

One year after graduating from high school, 21 per cent of the boys either had been or were then on active duty in the Armed Forces. The percentages in the various services were: Army (6.0 per cent), Navy (5.7 per cent), and Air Force (4.8 per cent). Another 14.5 per cent of the boys expected to enlist, while 18 per cent expected to be drafted. The remaining 47 per cent, however, did not expect to serve in the Armed Forces at any time. As might be expected, 99 per cent of the girls fell into this last category. One-half per cent, however, expected to enlist, while another one-half per cent either were on active duty or had been at one time.

The Respondent Bias

To correct the bias in the sample of students who had responded to the mailed questionnaire, the non-respondent study was conducted. But just how was the respondent sample biased? By comparing responses to certain questions included in both the regular and the special questionnaire, the bias becomes clear. It must be remembered that only about one-half of the 11th-graders tested in 1960 responded to the mailed questionnaire. In other words, one-half of the 11th-graders were not included in the respondent sample. And, as the following comparisons indicate, these students were quite different from those who did respond.

The first comparison (Table 3-6) shows that the respondents were less likely to be dropouts. In fact, 8 per cent fewer respondents than non-respondents left high school before graduating.

Table 3-6

DID YOU GRADUATE FROM HIGH SCHOOL?

	Regular Questionnaire (Percentages Based on Weighted Frequencies)			Special Questionnaire (Percentages Based on Weighted Frequencies)		
	Boys	Girls	All	Boys	Girls	Al
Yes	95.5	95.9	95.6	86.3	89.1	87.
No, still in high school but expect to graduate	0.9	0.4	0.8	1.3	0.4	0.
No, dropped out	3.6	3.7	3.6	12.4	10.5	11.
Total	100.0	100.0	100.0	100.0	100.0	100.

Another comparison (Table 3-7) reveals that only 32 per cent of the respondents did not go on to any type of school after high school,

Table 3-7

EDUCATION AFTER HIGH SCHOOL?

	Regular Questionnaire (Percentages based on Weighted Frequencies)			Special Questionnaire (Percentages based on Weighted Frequencies)		
	Boys	Girls	All	Boys	Girls	All
None	26.0	37.7	32.2	55.5	60.5	58.0
College offering bachelor's degree or higher	44.5	34.8	39.5	24.8	19.9	22.4
Junior or Community college	10.7	8.1	9.3	5.7	5.0	5.4
Technical Institute	3.8	0.9	2.2	1.7	0.4	1.0
School of Nursing	0.0	3.1	1.7	0.0	3.3	1.6
School of Practical Nursing	0.0	0.8	0.4	0.0	0.7	0.3
Secretarial or Business School	1.6	7.5	4.7	0.6	5.0	2.7
Trade or Apprentice School	2.6	2.3	2.4	1.9	2.8	2.4
Armed Forces Enlisted Man's School	7.5	0.2	3.6	7.5	0.2	3.9
Other	3.3	4.6	4.0	2.3	2.2	2.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

while 58 per cent of the non-respondents had had no further schooling by the spring of 1962. Twenty-one per cent more respondents than non-respondents attended college. And only 13 per cent of the respondents dropped out of college during their first year--less than one-half the number of non-respondents who left school within the same period.

As Table 3-8 indicates, there are also differences in the areas of specialization chosen in college. Of the respondents, 15.5 per cent decided to major in the natural sciences (mathematics, physical science, or biology) compared to only 6 per cent of the non-respondents. In the social sciences and the humanities, the percentages of respondents are also higher, although the differences are not so great as in the natural sciences. In business and education, however, the opposite was true. Fewer respondents than non-respondents chose these subjects as their major fields.

Table 3-9 compares the career plans made by these two groups of students. As might be predicted, 53 per cent of the respondents chose professional or technical occupations, while only 37 per cent of the non-respondents made this same choice.

From these comparisons it is evident that the respondent data were not accurate estimates of the entire eleventh-grade population. Those students who answered the questionnaire were more likely to graduate from high school and to continue their formal education than those who did not respond. And the respondents were less likely to drop out of college within the first year. There are differences, too, in the college majors and careers chosen by the respondents and non-respondents. But by combining and properly weighting data from both questionnaires, an unbiased estimate of all 11th graders in Project TALENT has been obtained.

Table 3-8

COLLEGE MAJOR?

	Regular Questionnaire (Percentages Based on Weighted Frequencies)			Special Questionnaire (Percentages Based on Weighted Frequencies)		
	Boys	Girls	All	Boys	Girls	All
Math	5.2	3.5	4.4	2.5	1.2	1.9
Physical Sciences	7.2	1.5	4.5	3.3	0.0	1.9
Biology	8.4	4.5	6.6	2.3	2.8	2.5
Social Studies	8.4	6.9	7.7	5.1	3.4	4.3
English	3.2	8.3	5.5	2.5	7.1	4.5
Languages	1.1	4.6	2.7	0.0	2.3	1.0
Fine Arts	1.8	3.7	2.7	1.1	3.4	2.1
Music	1.4	2.5	1.9	1.0	2.4	1.6
Psychology	2.7	3.7	3.2	2.7	2.1	2.4
Philosophy	1.0	0.3	0.7	0.4	0.3	0.4
Religion	1.3	0.6	1.0	1.7	0.0	1.0
Education	5.6	24.7	14.6	9.5	32.2	19.4
Engineering	17.6	0.2	9.4	13.0	0.0	7.3
Business	17.7	10.2	14.3	24.3	15.2	20.4
Home Economics	0.0	4.9	2.3	0.0	3.9	1.7
Agriculture	3.3	0.0	1.8	2.4	0.0	1.4
Nursing	0.0	5.8	2.7	0.0	4.6	2.0
Some other	10.6	8.5	9.6	17.8	14.8	16.5
No response	3.5	5.6	4.4	10.4	4.3	7.7
Total	100.00	100.0	100.0	100.0	100.0	100.0

Table 3-9

WHICH OCCUPATION DO YOU INTEND TO MAKE YOUR CAREER?

	Regular Questionnaire (Percentages Based on Weighted Frequencies)	Special Questionnaire (Percentages Based on Weighted Frequencies)
Biologist, veterinarian	1.6	0.9
Mathematician	0.6	0.2
Physical scientist	1.7	0.6
Engineer	6.6	3.6
Architect	0.6	0.4
Dentist	0.6	0.8
Pharmacist	0.4	0.0
Physician	2.3	0.9
Nurse	3.1	1.7
Accountant	3.2	2.4
Businessman	5.8	4.7
Teacher, librarian	15.8	6.6
Lawyer	2.0	1.5
Clergyman	1.7	1.0
Political scientist	0.4	0.1
Social worker	0.9	0.4
Social or behavioral scientist	1.8	1.4
Artist, entertainer, photographer	2.9	3.8
Writer	0.8	0.6
Armed Forces	1.6	3.3
Policeman, firemen	0.8	1.3
Bookkeeper, cashier, tab or keypunch operator	2.0	2.7
Telephone operator, other clerical	3.0	5.7
Stenographer, secretary, typist	10.6	9.7
Service worker	3.5	5.2
Agent, broker, dealer	0.4	0.8
Salesclerk, other sales personnel	0.5	1.7
Engineering or scientific aide	1.2	1.6
Medical or dental technician	2.0	1.5
Airplane pilot	0.2	0.1
Domestic	0.0	0.1
Farmer	1.7	2.0
Skilled worker	5.6	8.7
Farm or other laborer	0.6	2.4
Structural worker	1.2	3.4
Some different occupation from above	12.3	18.2
Total	100.0	100.0

Chapter 4

Further Education

As the United States finds itself well into the technical age, more and more people are asking the question: How much education is adequate to meet the demands of this decade and future decades?

Those willing to answer that question tend to agree that twelve years of schooling is rapidly becoming inadequate for anyone wanting to achieve satisfaction in his or her chosen occupation. Educators have recognized this fact most markedly during the last decade, shown by a fast rise in the number of two-year colleges in the United States.

The two-year college is not a new idea, far from it. In 1901 William Rainey Harper founded Joliet Junior College as an extension of high school. Through the years this idea has been expanded to include a variety of institutions in purpose and support. In 1964 alone 41 new junior colleges opened their doors to education, bringing the total number of two-year colleges in the United States to 719. This is almost 100 more than the total number in existence only seven years ago.

Accredited junior colleges and two-year, post-high-school institutions include community colleges, technical institutes, seminaries, junior colleges, and teachers' colleges. Many of these schools such as seminaries and technical institutes are two-year terminal institutions leading to some degree such as an Associate of Arts degree. Each of these types of institutions has found various means of support. The newer community colleges are often supported by state legislation and run by an elected board. In addition to state supported junior colleges, many school districts maintain their own colleges supported by local taxes. There are also, of course, many private church related, or non-profit, junior colleges available to the public. Although, as mentioned above, many of these schools offer terminal programs, their best job has been in preparing students for senior colleges.

The largest trend in junior college growth lies in the direction of the new community college, or public junior college which is tuition-free or much less expensive than the regular four-year college. Leland L. Medsker (TIME, March 5, 1965) refers to the community college as the "opportunity college" because tuition costs are at a minimum and in the near future almost everyone in the United States will have a community college accessible to him. California has 79 junior colleges with an enrollment of 152,000, and New York has jumped from 25 in 1950 to 69 in 1964. Ninety-five per cent of the population of New York lives within 25 miles of a junior college. In addition, community colleges have made the greatest stride in the area of adult education.

The obvious growth in the number and size of America's junior colleges presents educators with another vital question to be answered: What type of students are attracted to and attend the junior college? This is a difficult question to answer because of the large variety of functions filled by the two-year college. However, there is one main problem which has been studied; namely, whether entrance is based on inadequate aptitude for the four-year college program or whether it is based on socio-economic factors such as family income and proximity to the four-year colleges and universities.

A study by Mellinger (1962) has shown that a significantly larger proportion of students enroll in the junior college because they are unable to meet the requirements of the four-year college than because they need to keep costs low. Few of these students selected the junior college they attended because of proximity, in many cases students would travel 25 miles to attend the junior college bearing higher prestige even though they may have lived closer to another college offering the same course of study. It is also interesting to note that only a small proportion of the students could not afford to attend a four-year college. While most of the students in the study came from lower and middle-class families, a significant number had only one or two siblings and stated that their parents were financially able to send them to the four-year college.

Mellinger's study covers the enrollment of one junior college. However, the results suggest the need for a broader approach along the same lines. Such studies are necessary in order for educators to be made aware of the type of students entering the two-year colleges, and to help the colleges meet the needs of their students.

Ability Differences

Two types of variables will be presented here. Three groups (non-college, junior college, and college) will be compared in terms of selected ability measures and in terms of their family socio-economic, cultural environment. The ability measures selected for this chapter consist of six measures of information and eight measures which are generally considered aptitude and achievement. The list of variables can be found in Table 4-1. Only the mailed respondents are included here.

Table 4-1 lists the means and standard deviations for these 14 ability measures for the three criterion groups for over 16,000 males. It is not necessary to discuss statistical significance since all these are very highly significantly different. Table 4-2 presents the same information for over 18,000 females. Inspection of Table 4-1 and Table 4-2 reveals that the means of the junior college group fall between the college and non-college means in every instance. Occasionally the junior college means are more like the college means, but there is a slightly greater tendency for the junior college students to be more like the non-college people. This tendency becomes clearer later in this discussion. Also, comparing Tables 4-1 and 4-2, there are marked sex differences for most of the variables. Sometimes it is the males who did better than the females, other times just the opposite.

Although these three groups differ on the fourteen variables to a highly significant degree, it is also of interest to talk about the extent to which they overlap. Figure 4-1 shows this overlap for the

Table 4-1

College, Junior College, and Non-College Ability Means and Standard Deviations

(16,384 Males)

Variable	Non-College		Junior College		College	
	Means	Std. Dev.	Means	Std. Dev.	Means	Std. Dev.
R-102 Vocabulary Info	12.7	3.7	14.3	3.2	16.0	3.0
R-103 Literature Info	12.2	4.2	14.1	3.9	16.1	3.9
R-105 Social Studies Info	15.4	5.1	17.7	4.2	19.6	3.8
R-106 Math Info	8.7	4.9	11.7	5.0	15.4	5.0
R-107 Physical Science Info	9.0	3.9	10.8	3.8	12.7	3.5
R-108 Biological Science Info	6.4	2.3	7.2	2.0	7.9	2.0
R-211 Memory for Sentences	8.6	3.0	9.0	2.9	9.3	2.9
R-220 Disguised Words	13.7	6.6	15.5	6.4	18.2	6.5
R-230 English Total	77.6	12.5	83.3	10.3	88.8	10.4
R-250 Reading Comprehension	28.9	10.2	34.0	8.6	38.2	7.7
R-260 Creativity	9.1	4.0	10.4	3.8	11.7	3.8
R-290 Abstract Reasoning	8.9	2.9	9.9	2.5	10.7	2.4
R-340 Math Total	21.6	8.6	26.6	8.9	32.9	9.6
F-410 Arithmetic Computation	25.1	21.8	30.7	17.4	36.9	15.4

Table 4-2

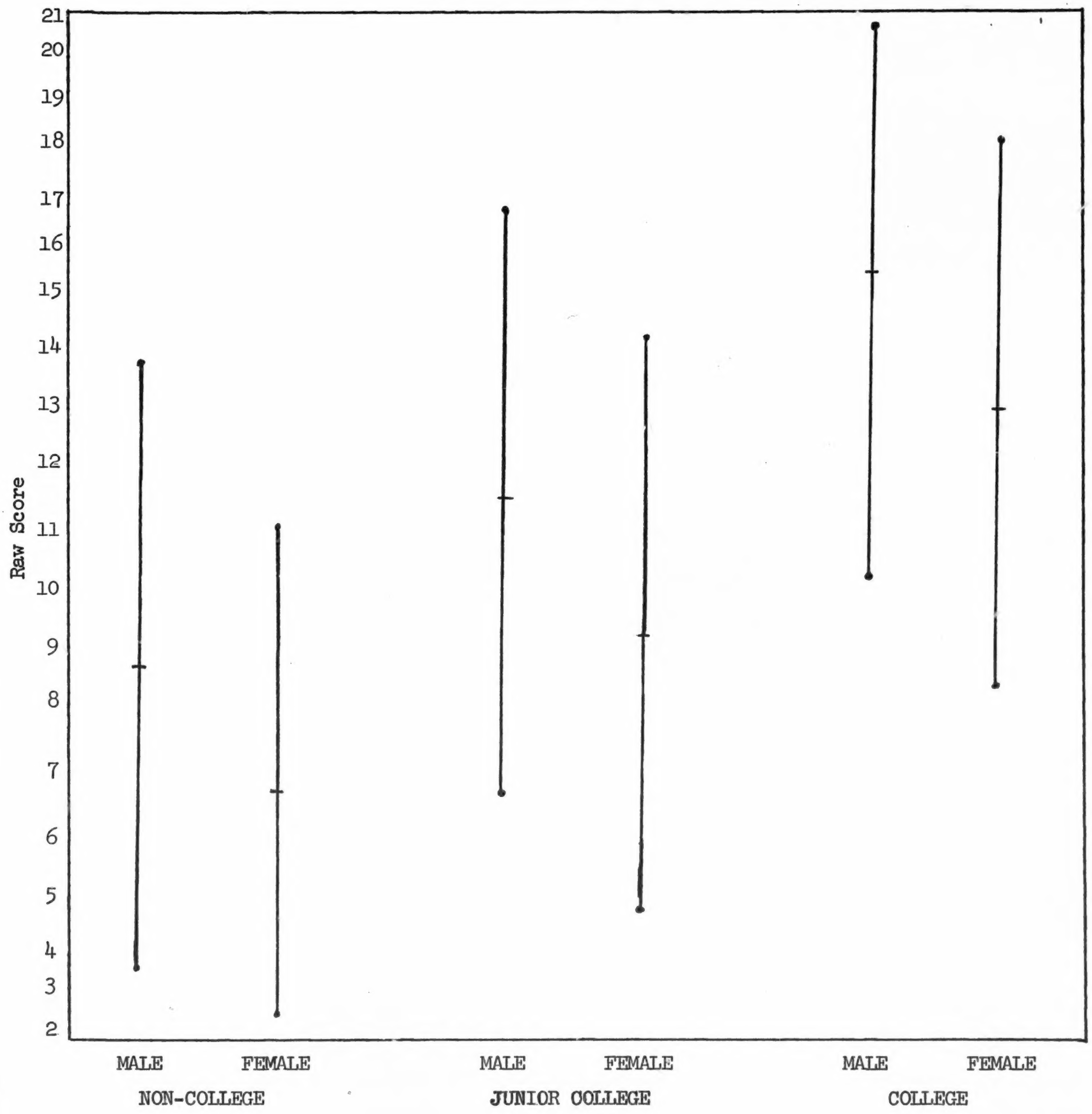
College, Junior College, and Non-College Ability Means and Standard Deviations

(18,646 Females)

Variable	Non-College		Junior College		College	
	Means	Std. Dev.	Means	Std. Dev.	Means	Std. Dev.
R-102 Vocabulary	11.6	3.8	13.3	3.5	15.2	3.3
R-103 Literature Info	12.2	4.0	14.2	3.8	16.2	4.1
R-105 Social Studies Info	13.7	4.7	15.7	4.3	18.0	4.1
R-106 Math Info	6.7	4.3	9.2	4.8	13.0	5.2
R-107 Physical Science Info	6.5	3.4	7.5	3.6	9.9	3.8
R-108 Biological Science Info	5.5	2.2	6.1	2.2	7.1	2.0
R-211 Memory for Sentences	9.3	3.0	9.5	3.0	10.3	2.9
R-220 Disguised Words	16.0	6.9	17.6	6.4	19.7	6.2
R-230 English Total	85.1	11.9	89.1	9.5	94.0	9.1
R-250 Reading Comprehension	30.8	9.3	34.8	8.1	38.8	7.2
R-260 Creativity	8.5	3.6	9.5	3.6	10.8	3.6
R-290 Abstract Reasoning	8.8	2.9	9.7	2.5	10.5	2.3
R-340 Math Total	19.8	7.6	23.3	8.1	29.5	9.3
F-410 Arithmetic Computation	30.9	17.7	34.1	14.5	38.6	14.7

Figure 4-1

MEANS AND STANDARD DEVIATIONS ON R-106-MATHEMATICS
FOR 11TH GRADE NON-COLLEGE, JUNIOR COLLEGE
AND COLLEGE MALES AND FEMALES



mathematics information scale (R-106). In Figure 4-1 one can see both the non-college, junior college, college differences and the sex differences. The means of the six groups are indicated at the center of the line, and the line is extended to the equivalent of one standard deviation to both sides of the mean. Thus, the distance spanned by the complete line includes over 68 per cent of that group.

Similar analyses of the data have been carried out for each of the other scales. What all of the results illustrate can be summarized in Table 4-3, which shows the results for six of the variables. Table 4-3 shows that about a third of the junior college students fall below the non-college mean, and a third of them fall above the college mean for the corresponding sex. The remaining one-third of the junior college population falls between the average non-college student and the average college student. Another interesting result of these data is that the aptitude measures exhibit much greater overlap among the three criterion groups than do the information scales.

The availability of the computer today allows us to apply multivariate methods of analysis to data such as that summarized in Tables 4-1 and 4-2, thus enabling the investigator to reduce the amount of information he has to think about in making generalizations about observations. With the data described in Tables 4-1 and 4-2, a six-group discriminant analysis was performed using the same 14 variables. The six groups are listed in Table 4-4. The results of the discriminant analysis indicate that all of the information in the 14 variables regarding the differences among the six groups could be summarized in two discriminant functions or axes.

Table 4-3

Percent of Junior College Students Above College Mean and Below Non-College Mean

Variable	% Below Non-College Mean		% Above College Mean	
	Males	Females	Males	Females
R-102 Vocabulary	31	31	28	28
R-105 Social Studies	29	33	32	29
R-106 Mathematics	27	30	23	21
R-107 Physical Sciences	31	39	30	25
R-260 Creativity	36	39	36	36
R-290 Abstract Reasoning	35	37	37	37

Table 4-4

CENTROIDS OF GROUPS IN DISCRIMINANT SPACE

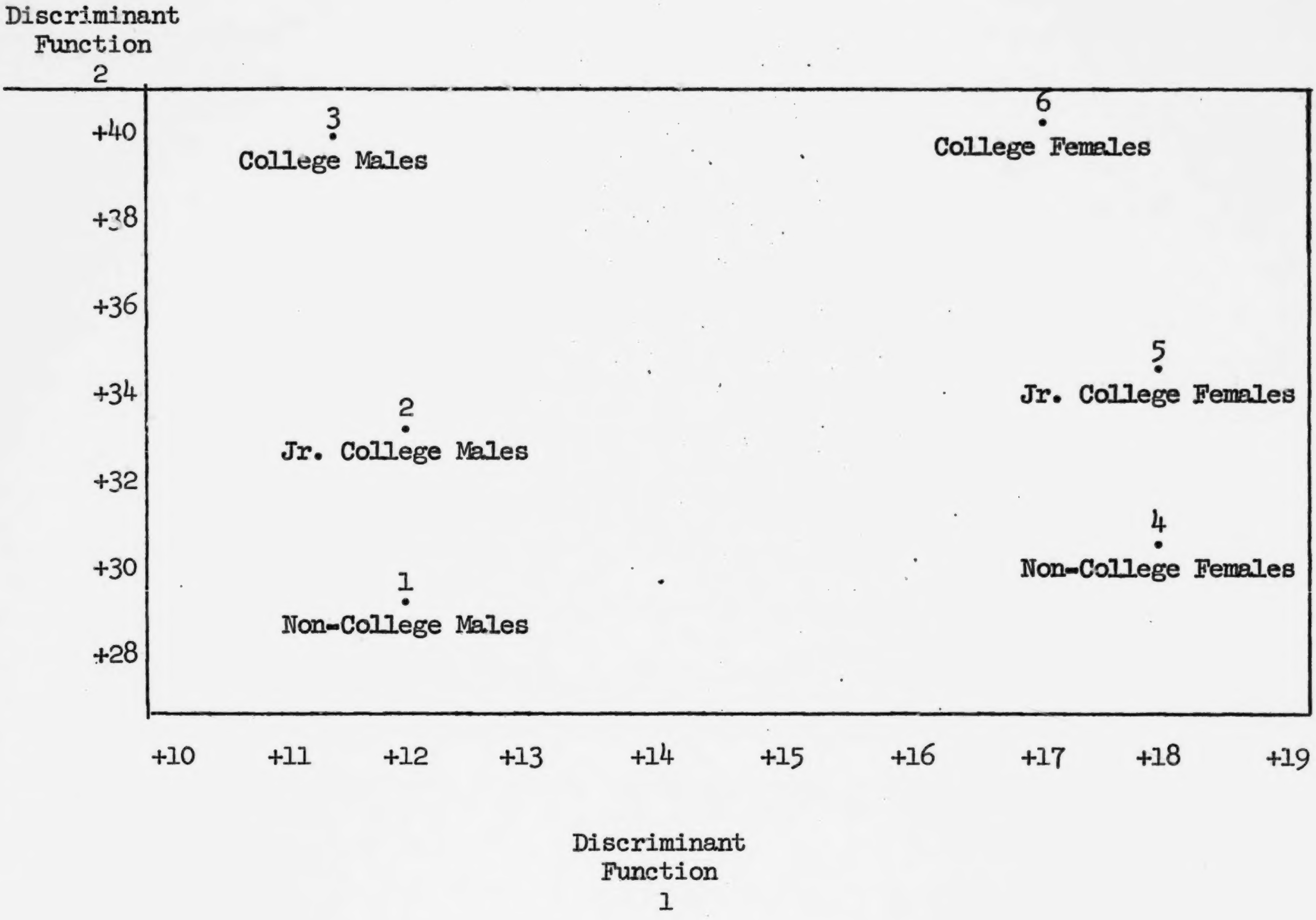
	1	2
Non-College Males	11.89	29.10
Jr. College Males	11.78	33.43
College Males	11.27	39.87
Non-College Females	18.29	31.05
Jr. College Females	18.26	34.30
College Females	16.84	39.96

The first discriminant function accounted for 61 per cent of the discriminating information available in the 14 variables, and the second discriminant function accounted for 35 per cent. This means that 96 per cent of all the information regarding these group differences can be summarized in the first two discriminant functions. The locations of the six groups on each of the two discriminant functions are indicated in Table 4-4. The surprising finding here is that the first and largest discriminant function separates the sexes, not the three college criterion groups. This can be better visualized in Figure 4-2. The horizontal axis is discriminant function 1 and the males are on the left and the females are on the right. The vertical axis separates the three college groups with the corresponding male and female groups being at approximately the same level on discriminant function 2. That is, Figure 4-2 is simply a plot of information of Table 4-4 showing the locations of the different groups. These group locations summarize the profiles of each of the groups on the 14 variables used in this analysis.

In terms of the original 14 variables in the composition of the discriminant functions is indicated on Table 4-5. In the first column are the weights for discriminant function 1. Those variables with high positive loadings indicate the female end of the discriminant function 1 and the high loadings indicate the male end of the function. That is, the girls tended to have higher scores for the positively loaded variables, and the males tended to have higher scores for the negatively loaded variables. Thus the females did better than did the males on Literature

Figure 4-2

CENTROIDS OF GROUPS IN ABILITY DISCRIMINANT SPACE



Information, Memory for Sentences, English Achievement, Reading Comprehension, and Arithmetic Computation. The males did better on Vocabulary, Social Studies, Mathematics, Science, and Creativity.

In discriminant function 2, which separates the three college groups, the high positive loadings are indicative of college going. The most potent predictor of college going or not seems to be the Mathematics Information scale with a loading of .67. This is contrasted with Abstract Reasoning ability which has essentially no loading at all. In this second discriminant function negative loadings seem to be acting as suppressor variables in the prediction.

Another way of summarizing these data multivariately is indicated in Table 4-6. Mahalanobis has provided us with a way of measuring differences among groups taking into account any number of variables. In other words, this is a measure of group profile similarity. In terms of the 14 variables analyzed here Table 4-6 tells us that the junior college students look more like the non-college students than like the college students. The higher the number in Table 4-6 the larger the distances among groups or, conversely, the smaller the number, the greater the profile similarity.

Further observations of Table 4-6 reveal that the differences among the three male groups are similar to the differences among the three female groups. As in the discriminant analysis, the differences between the sexes are greater than the differences among the three college criterion groups. We shall now turn to the socio-economic cultural variables where quite a different set of trends is observed.

Table 4-5

SCALED DISCRIMINANT VECTORS

	1	2
R102 Vocabulary	-.28	-.14
R103 Literature	.27	.36
R105 Social Studies	-.29	-.11
R106 Math	-.24	.67
R107 Physical Science	-.44	-.09
R108 Biology	-.07	.07
R211 Mem. for Sentences	.14	.14
R220 Disguised Words	.08	.11
R230 English Total	.57	.37
R250 Reading Comp.	.35	.38
R260 Creativity	-.24	-.22
R290 Abstract Reasoning	-.03	-.02
R340 Math Total	-.09	.09
F410 Arithmetic	.04	.09

Table 4-6

MAHALANOBIS DISTANCE MATRIX

	NCM 1	JCM 2	CM 3	NCF 4	JCF 5	CF 6
Non-College Males	.00	.66	1.61	1.72	1.77	2.01
Jr. College Males	.66	.00	1.01	1.77	1.83	1.84
College Males	1.61	1.01	.00	2.36	2.26	1.62
Non-College Females	1.72	1.77	2.36	.00	.71	1.41
Jr. College Females	1.77	1.83	2.26	.71	.00	.96
College Females	2.01	1.84	1.62	1.41	.96	.00

Socio-Economic Differences

In order to obtain an estimate of the general socio-economic cultural environment from which these students come seven items from the Student Information Blank (SIB) of the Project TALENT battery were used. These seven items concerned mother's and father's education, the father's job, the number of books in the home, whether or not the student had a room, desk and typewriter of his own at home, and two items on the extent to which luxury appliances and electronic equipment (TV, etc.), were present in the home.

Tables 4-7 and 4-8 present the means for these seven items for the males and females, respectively. Since the numerical value of the mean is a function of the scaling of the item responses, the means have no absolute interpretation in terms of socio-economic status. Rather, they can be viewed relatively across the three groups. Once again we see that the junior college group falls between the non-college and college group in every case.

Turning to multivariate procedures for assisting in the interpretation of the group trends, Table 4-9 presents results of the Mahalanobis distance analysis. One important trend here with respect to junior college students is that the junior college males have the same general pattern of socio-economic background as do the junior college females, at least in terms of these seven variables. In fact, this is the first time that the application of the D^2 technique to Project TALENT data has resulted in a distance measure so small (.31) it is not statistically significantly different from zero. In fact, in terms of the socio-economic variables, the two sexes are quite similar within the college

Table 4-7

College, Junior College, and Non-College Socio-Economic Means and Standard Deviations

(Over 15,000 Males for Each Variable)

SIB Item	Non-College		Junior College		College	
	M	SD	M	SD	M	SD
176 No. of books	3.1	1.2	3.3	1.1	3.7	1.1
190 No. of appli.	4.1	1.3	4.4	1.2	4.6	1.2
191 No. of elec. appli	4.4	1.0	4.6	0.7	4.8	0.6
195 Own room	2.4	1.0	2.8	1.0	3.2	1.0
206 Father's job	2.7	1.3	3.1	1.2	3.5	1.2
218 Father's educ.	4.0	1.9	4.7	2.0	5.3	2.1
219 Mother's educ.	4.2	1.7	4.9	1.7	5.4	1.8

Table 4-8

College, Junior College, and Non-College Socio-Economic Means and Standard Deviations

(Over 16,000 Females for Each Variable)

SIB Item	Non-College		Junior College		College	
	M	SD	M	SD	M	SD
176 No. of books	3.1	1.1	3.5	1.1	3.7	1.1
190 No. of appli.	4.0	1.3	4.4	1.2	4.6	1.2
191 No of elec. appli.	4.6	0.8	4.8	0.6	4.8	0.5
195 Own room	2.7	1.0	3.0	1.0	3.2	0.9
206 Father's job	2.7	1.2	3.2	1.2	3.5	1.1
218 Father's educ.	3.9	1.8	4.7	2.0	5.4	2.2
219 Mother's educ.	4.2	1.6	5.0	1.7	5.5	1.8

and non-college groups also. Another interesting trend is that in terms of socio-economic variables, junior college groups are more like the college groups than the non-college groups. This is an important contrast to the ability trends.

The results of the discriminant analysis of these data are quite different from the ability data. In terms of socio-economic variables only one discriminant function seems to be necessary for separating the groups, and that function is primarily separating the three criterion groups with respect to college, irregardless of sex. This is shown in Table 4-10 where the centroids for the six groups are listed as the first discriminant function. This discriminant function accounts for 80 per cent of the discriminating variance available in these seven economic predictors.

Of course all seven variables are significantly related to membership in these six groups, but the relative predictive power among the seven variables is interesting. There are two ways of thinking about this question. One is to examine the weights in the discriminant function, thus giving the contribution of the predictor in combination with the other predictors; the other way is to look at the F ratio for each variable individually with respect to the differences among the groups and within the groups for that variable. In this particular case, the discriminant function weights and the individual F ratios result in similar interpretations. The largest group differences in terms of within-group variability are for the SIB Item 195 which asks the extent to which the student has his own room, his own study desk, and typewriter. Next in importance are father's job and mother's education. It is

Table 4-9

Mahalanobis Distance Matrix--Socio-Economic Variables

	NCM	JCM	CM	NCF	JCF	CF
Non-College Males	.00	.76	1.14	.54	.82	1.22
Jr. College Males	.76	.00	.57	.67	.31	.72
College Males	1.14	.57	.00	.95	.45	.44
Non-College Females	.54	.67	.95	.00	.74	1.08
Jr. College Females	.82	.31	.45	.74	.00	.51
College Females	1.22	.72	.44	1.08	.51	.00

Table 4-10

Socio-Economic Centroids

Non-College Males	7.17
Jr. College Males	8.28
College Males	9.05
Non-College Females	7.59
Jr. College Females	8.53
College Females	9.22

Table 4-11

Relative Predictive Power of the Socio-Economic Variables

SIB Item	Discriminant Function 1	F-Ratios
176 No. of books	.32	16.5
190 No. of appli.	.14	12.6
191 No. of elec. appli.	.20	9.6
195 Own room	.58	22.4
206 Father's job	.48	19.5
218 Father's educ.	.30	14.4
219 Mother's educ.	.43	19.5

interesting to note that the mother's education is more related to group membership here than is father's education. Closely following the number of books in the home, which is the next best predictor, are the remaining four variables.

It is extremely difficult to make reasonable comparisons between the relative nature of the group differences in ability and in environment. The main reason for this difficulty is that much more is known about our measures of student ability than about our measures of student environment. As more is learned about the reliability and validity of these environmental items or factors based on them, it will be possible to draw inferences about whether ability is more important than environment in this decision, or vice versa.

Both ability measures and environmental measures are very much involved in determining whether a student goes to college, junior college, or to no college at all. There is a tendency for junior college students to be more like non-college students in terms of ability and more like college students in terms of socio-economic factors. This is true for both males and females.

Chapter 5

Non-Professional Job and Career Plans

In discussing talent and talent utilization, it is important to consider the aptitudes and abilities not only of those individuals who go on to college, but also of those who enter the world of work directly from high school.

There are many types and levels of non-professional or vocational occupations. Proper placement within these jobs is just as vital to those involved as it would be to the college graduate making a selection between a job in sales and one in management training. In both considerations knowledge of self and knowledge of job ability requirements are critical to a successful decision.

With the above in mind, this chapter will focus on certain abilities and the relationship of these abilities to various non-professional jobs. The scores discussed are based on the administration of Project TALENT tests to 11th graders in May of 1960. The occupational groupings are based on responses to follow-up questionnaires administered one year after that 11th-grade group had graduated from high school. Ten occupational profiles are presented in the text and further tables of possible interest appear in Appendix B. These tables include additional variables and groups.

The basic sample considered in this chapter consisted of all those who responded to the mailed follow-up questionnaire in June of 1962, excluding those who were enrolled in a college offering a bachelor's degree or in a junior or community college. The individuals remaining were classified into three categories within each occupational group. The classifications are based on relationships between present actual job and future career plan. Questions number 6 and 11 in the one-year follow-up questionnaire were used to obtain the classification groupings. The results reported herein are based on the male sample. The total unweighted number classified as indicated above was 11,354. The test means as presented in the text are based upon frequencies appropriately weighted to provide population estimates. The average of the weights is approximately 20.

One category within each occupational group consisted of those who responded that they were presently employed in that occupation and that they intended to make it their career. For example, this category might be those employed as carpenters who also intend to make a career of carpentry.

A second category is comprised of those working in a particular occupation who plan on making some other occupation their career. This might be someone working as a carpenter who plans to make drafting his career.

Those who planned to make a career of the occupation, but who were presently employed in another job or not employed at all, form the third category within each occupation. An example of this would be a construction laborer planning on a career in carpentry.

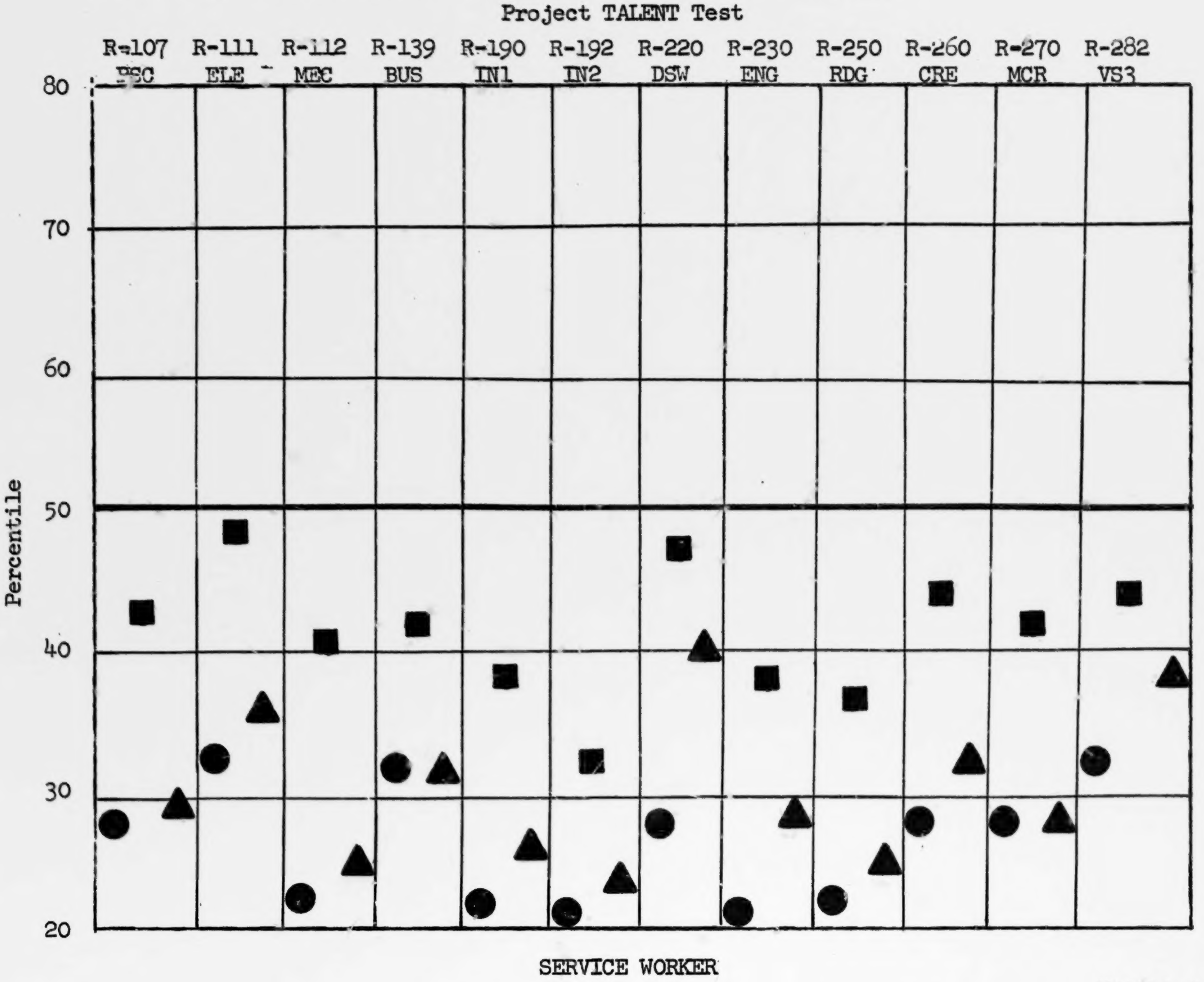
It was felt that stratification of the job variable by future career plan was highly worthwhile, since those who are in an occupation and intend to stay there could differ greatly from individuals who are employed in an occupation, but don't intend to remain in that job. The same rationale also holds for stratifying the career plan variable as to present job.

For those unfamiliar with the code numbers for the Project TALENT tests the following list of codes for the most widely discussed tests in this chapter may be helpful: R-107, Physical Science Information; R-111, Electricity and Electronics Information; R-112, Mechanical Information; R-139, Accounting, Business, and Sales Information; R-190, Information Part I Total; R-192, Information Part II Total; R-220, Disguised Words Test; R-230, English Total; R-250, Reading Comprehension; R-260, Creativity; R-270, Mechanical Reasoning; R-282, Visualization in Three Dimensions.

Differences Within Occupations

The differences among the three occupational categories are often very apparent. A case in point is the occupational area designated "service." Service workers in the present analysis consist of those employed as barbers, hairdressers, bakers, chefs, cooks, waiters, busboys, ushers, elevator operators, dishwashers, porters, bellboys, and those employed in other related capacities. As can readily be seen from Figure 5-1, the individuals working in service jobs who intend to make careers in other occupations score considerably higher than either of the other two service worker categories. The general superiority of the temporarily employed in this occupation is not unexpected; however, the degree of consistency of this superiority is striking.

Figure 5-1: Profile Comparisons Among Service Worker Categories



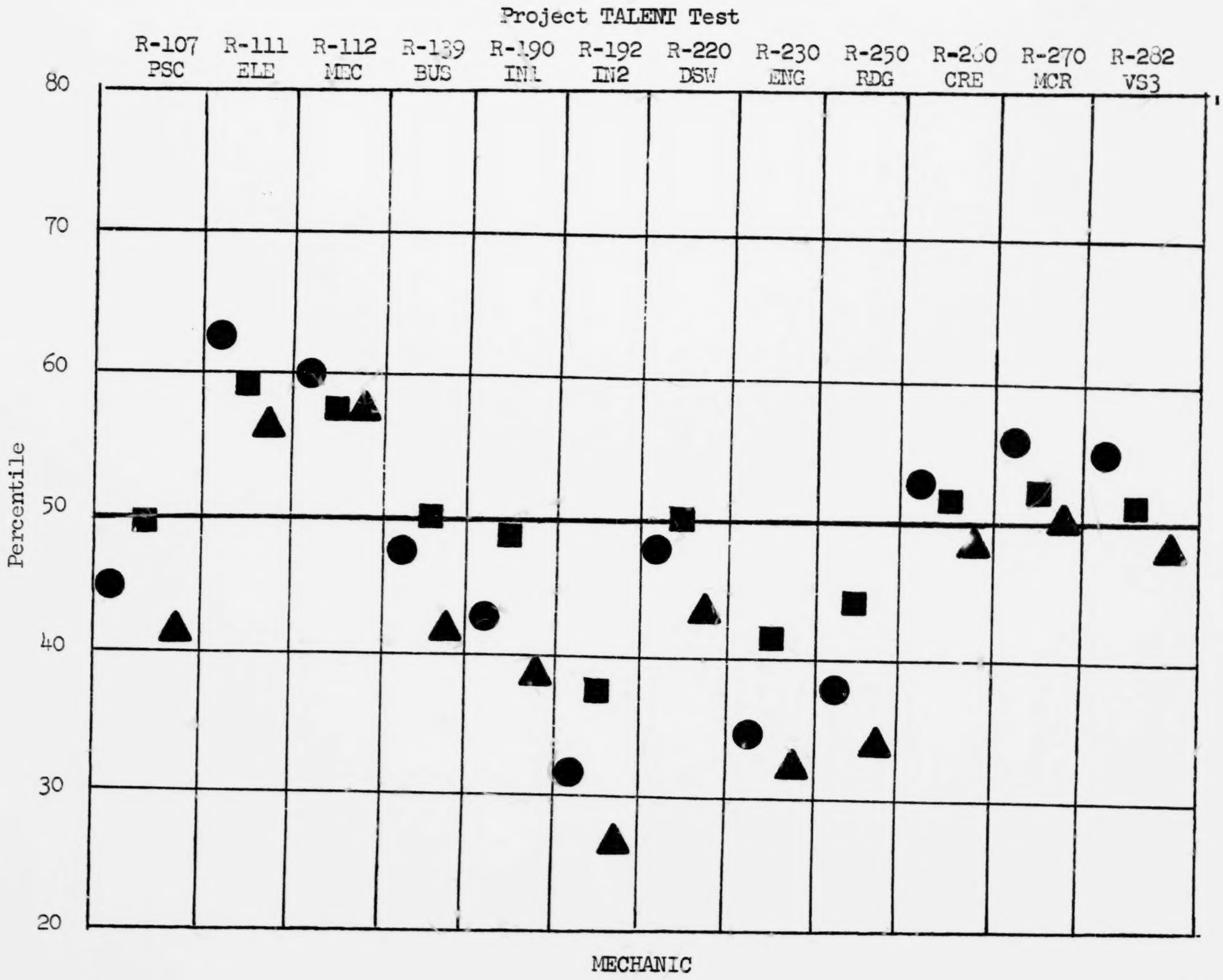
	Weighted N
● = Mean score of those employed in job and planning to remain in that career	656
■ = Mean score of those employed in job but planning a career in a different area	9,639
▲ = Mean score of those planning a career in this area but presently employed elsewhere	891

Figure 5-1 and profiles for other lower-aptitude-level job categories (example, unskilled laborers) point out rather dramatically a process possibly best described as negative selection. Here it is seen that the more able (in terms of 12 Project TALENT tests) are only temporarily employed in jobs requiring minimal intelligence and that they have career plans in other areas. On the other hand, those individuals who are in and intend to remain in a service job exhibit extremely low TALENT profiles. This stability may be the result of job satisfaction, inertia, lack of opportunity, or other factors.

Of course, the relationship between the three occupational categories is not always as clear-cut as the one just discussed. However, by examining the category relationships in terms of the aptitudes necessary for success in the job and the tests most directly related to job success, it is possible to understand the profiles. An example of this is evident in Figure 5-2, which is the profile for mechanics. The mechanic group consists mainly of auto mechanics, but also contains some airplane, office and industrial machine, and other types of mechanics along with individuals involved in repair of miscellaneous small products such as clocks, lab instruments, photographic equipment, etc.

On seven of the twelve tests, those intending to leave the mechanic area score higher than do those planning to make a career of their present job. Further, the seven tests on which the "temporary" mechanics score higher appear to measure a more general ability. Among the seven tests are both the Information Part I and Part II Totals, the Disguised

Figure 5-2: Profile Comparisons Among Mechanic Categories

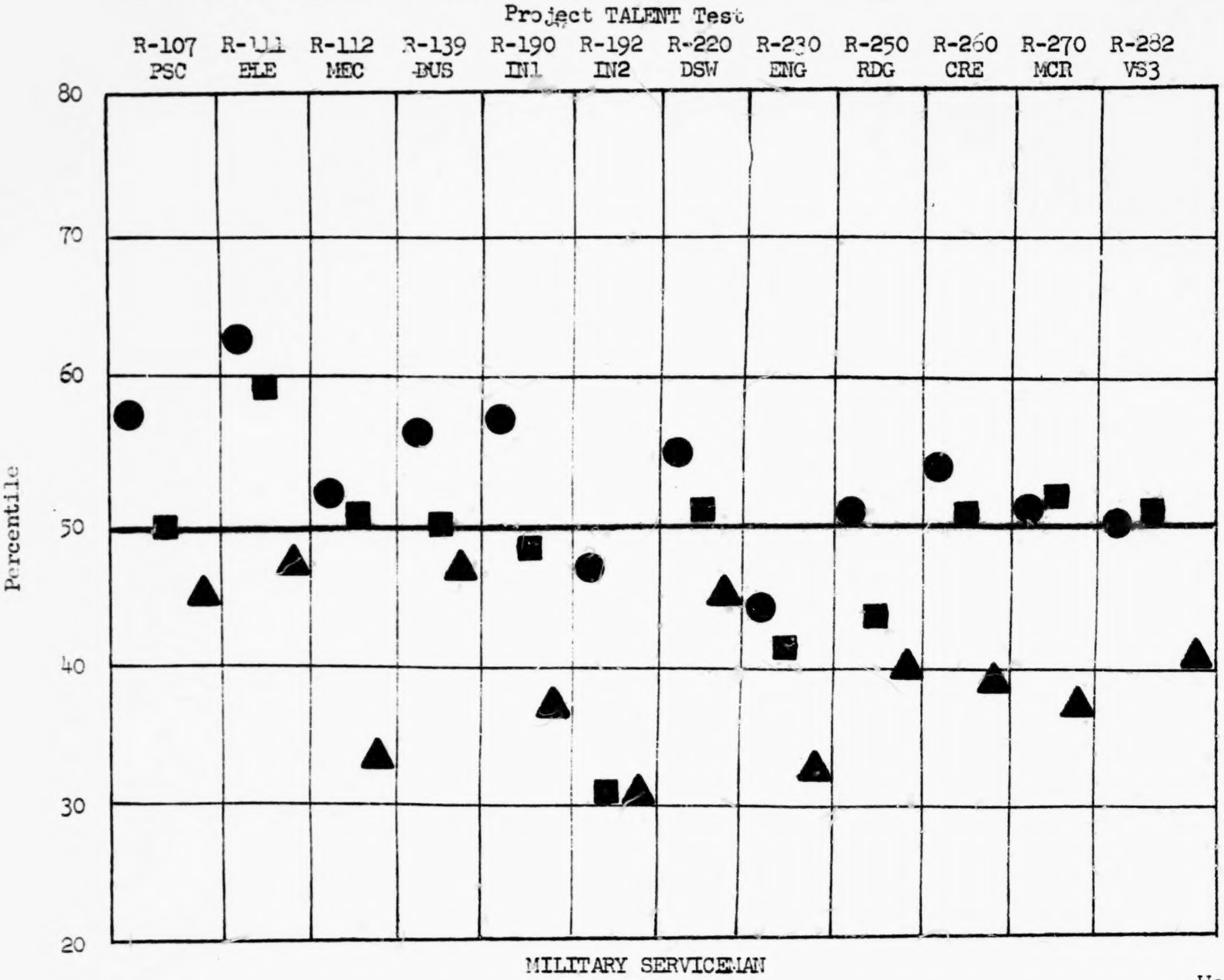


	Weighted N
●=Mean score of those employed in job and planning to remain in that career	3,154
■=Mean score of those employed in job but planning a career in a different area	4,535
▲=Mean score of those planning a career in this area but presently employed elsewhere	5,012

Words Test, the English Total, and the Reading Comprehension Test. The tests on which the "career mechanics" scored higher are tests that one would logically expect to be more closely related to the job of mechanic, namely, Electrical Information, Mechanical Information, Creativity, Mechanical Reasoning, and Visualization in Three Dimensions. The higher level of general ability and the somewhat lesser level of specific mechanical ability possessed by the "temporary" mechanics probably is a major factor in their contemplation of other than a mechanic's career. The difference in career plans between the two mechanic groups is also no doubt related to differing degrees of interest in the area. The "temporary" mechanics scored significantly lower on the Project TALENT mechanical-technical scale. The third group, those who intend to make a career in mechanics but are employed elsewhere if they are employed at all, scored lowest on all the tests.

A final example demonstrating the variations between categories of occupational and career plan groups is given in Figure 5-3. This is the profile for military service. Those in the service who plan on following a military career have the highest scores on 10 of the 12 selected TALENT tests, while those not presently in the service who are planning military careers have the lowest scores on every one of the tests. Evidently those who have not enlisted in the Armed Forces within one year after their high school graduation, but still intend to make a career in the military service, represent a quite distinct sub-population.

Figure 5-3: Profile Comparisons Among Military Service Categories



	Weighted N
● = Mean score of those employed in job and planning to remain in that career	2,331
■ = Mean score of those employed in job but planning a career in a different area	25,097
▲ = Mean score of those planning a career in this area but presently employed elsewhere	2,059

While very interesting relationships are evident in the study of patterns of job preference, it was not possible with the data available to study an additional important consideration, namely, the nature or direction of specific migrations from a given occupation. Collection of longer range follow-up data and the subsequent knowledge of job mobility will be vital to enlargement and refinement of this research area. It must be kept in mind that in terms of aptitude, people leave occupations for two main reasons: 1) the job requires different abilities from those the individual possesses and 2) the individual's ability is not challenged by the job. Study of occupational shifts must take into account both the aptitude levels required for the former job and that for the new job.

Differences Between Occupations

Before test profiles of occupational groups can be compared with each other, it is necessary to pick a basis for comparison. As has been shown, the test scores for the three categories (present job--career plan) within occupations vary considerably. The category felt to be most representative of a given occupation is the one composed of those presently employed in a job who also indicate plans to make a career in that occupation. By using this category it was anticipated that criterion or occupational groups could be obtained that would be more stable than would ordinarily be expected on the basis of one year's employment.

The profiles presented here and similar profiles constructed for other occupations can serve a very useful purpose in vocational guidance and counseling. They will allow individual students to compare their own TALENT or TALENT calibrated profile with high school test profiles for defined occupational groups. Of course, for completely comprehensive counseling, many additional aptitude tests along with personality and interest measures must be given consideration.

Figure 5-4 is the profile for those employed in and also planning careers as electricians or electronic technicians. The percentile point marked for each test represents the mean of this occupational group. The norms on which the percentiles are based were derived from the Project TALENT sample of 11th-grade males tested in 1960. The profile for electricians has face validity in that the average score of this group on the Electricity and Electronics Information Test (R-111) was at the 78th percentile for 11th-grade males in general. In addition to Electrical Information, the average scores of this group are at or above the 60th percentile on tests measuring Physical Science Information, Mechanical Information, Mechanical Reasoning, and Visualization in Three Dimensions. They also score above the 60th percentile on the Information Part I Total.

In comparison with the electricians, the carpenters' profile (Figure 5-5) has a much lower general appearance. The carpenters scored at the 58th percentile on the tests of Mechanical Information (R-112) and Visualization in Three Dimensions (R-282) and were near the median on Electricity and Electronic Information (R-111), Creativity (R-260), and Mechanical Reasoning (R-270). Their mean scores on the Information Test Totals (R-190, R-192), Reading Comprehension (R-250), and English (R-230) were low, however.

Highly similar profiles for machinists and mechanics are evident as can be seen in Figures 5-6 and 5-7. Both groups are above the median on

Figure 5-4: Mean Score Electrician Profile

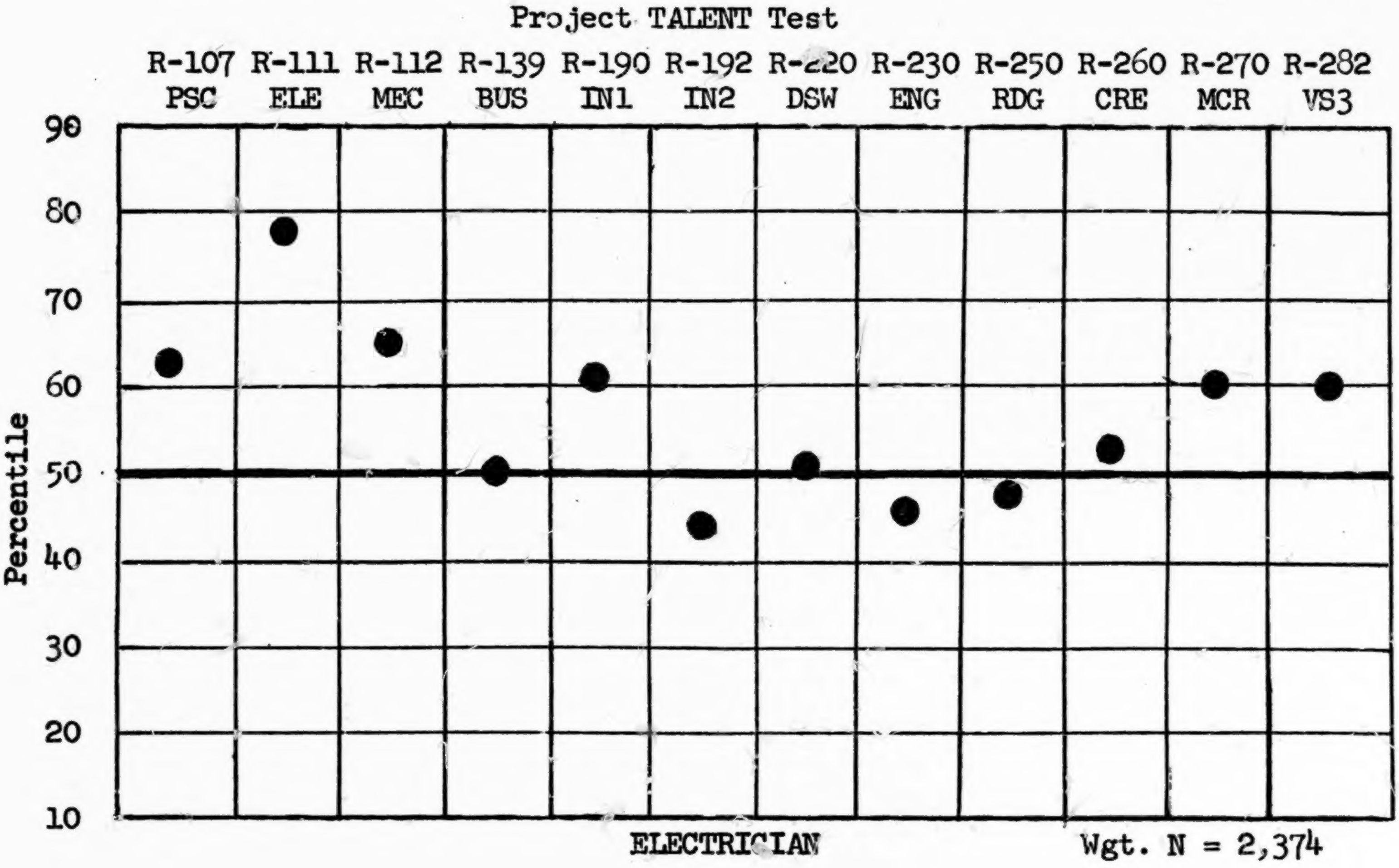
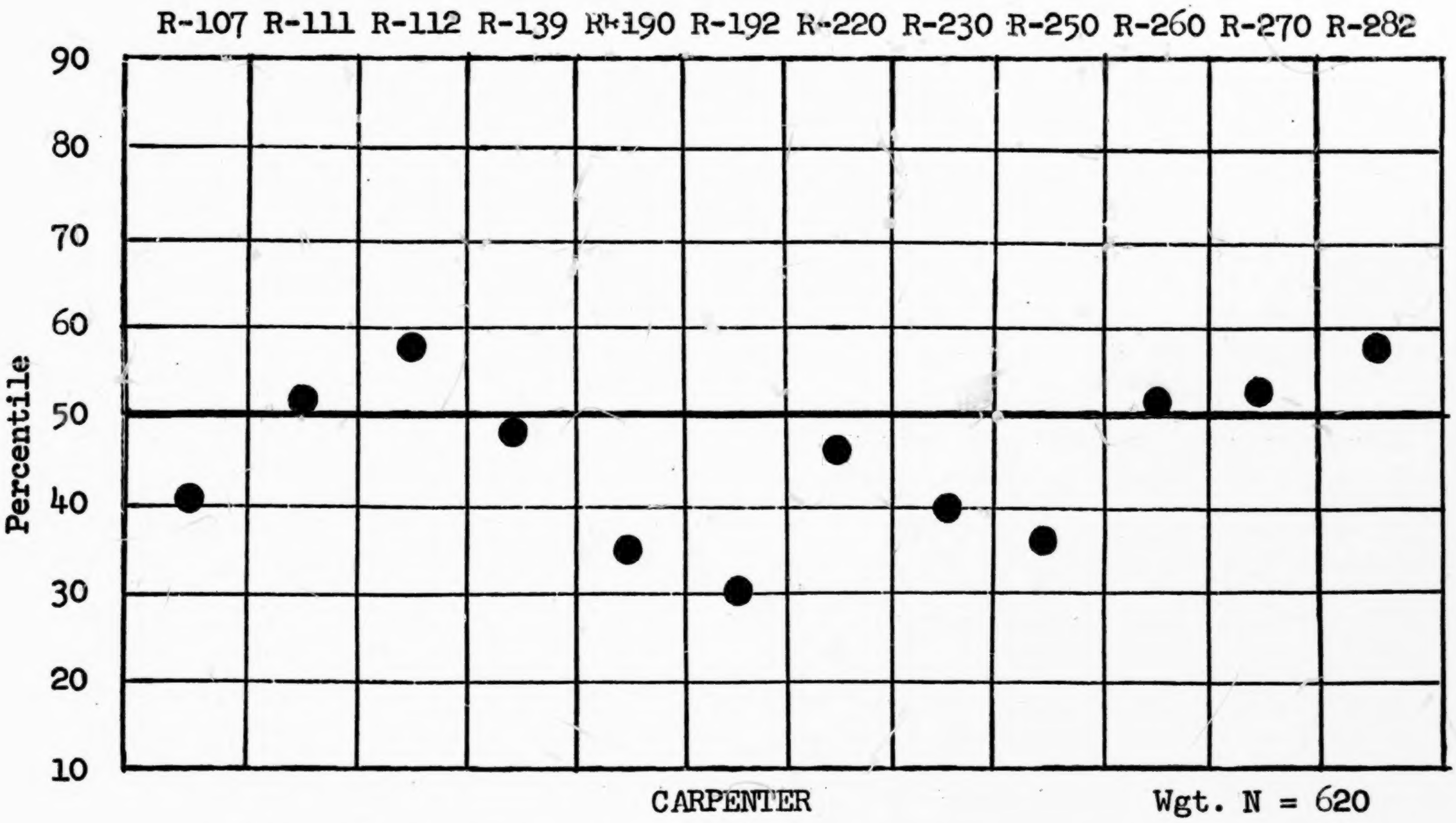


Figure 5-5: Mean Score Carpenter Profile



Patterns of ability tests taken in the 11th-grade by males who one year after high-school graduation are employed in an occupation and indicate career plans in that same area.

Figure 5-6: Mean Score Machinist Profile

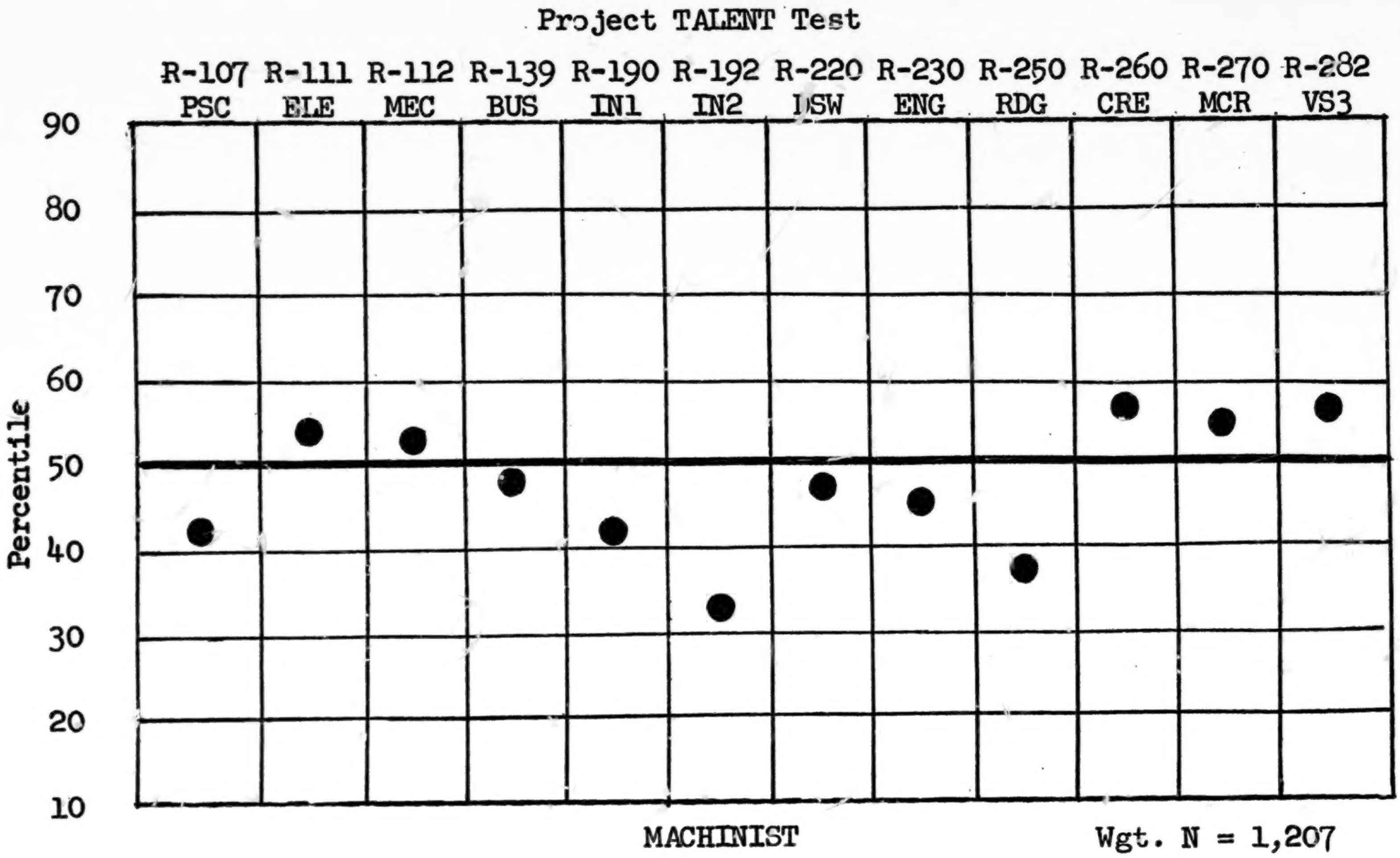
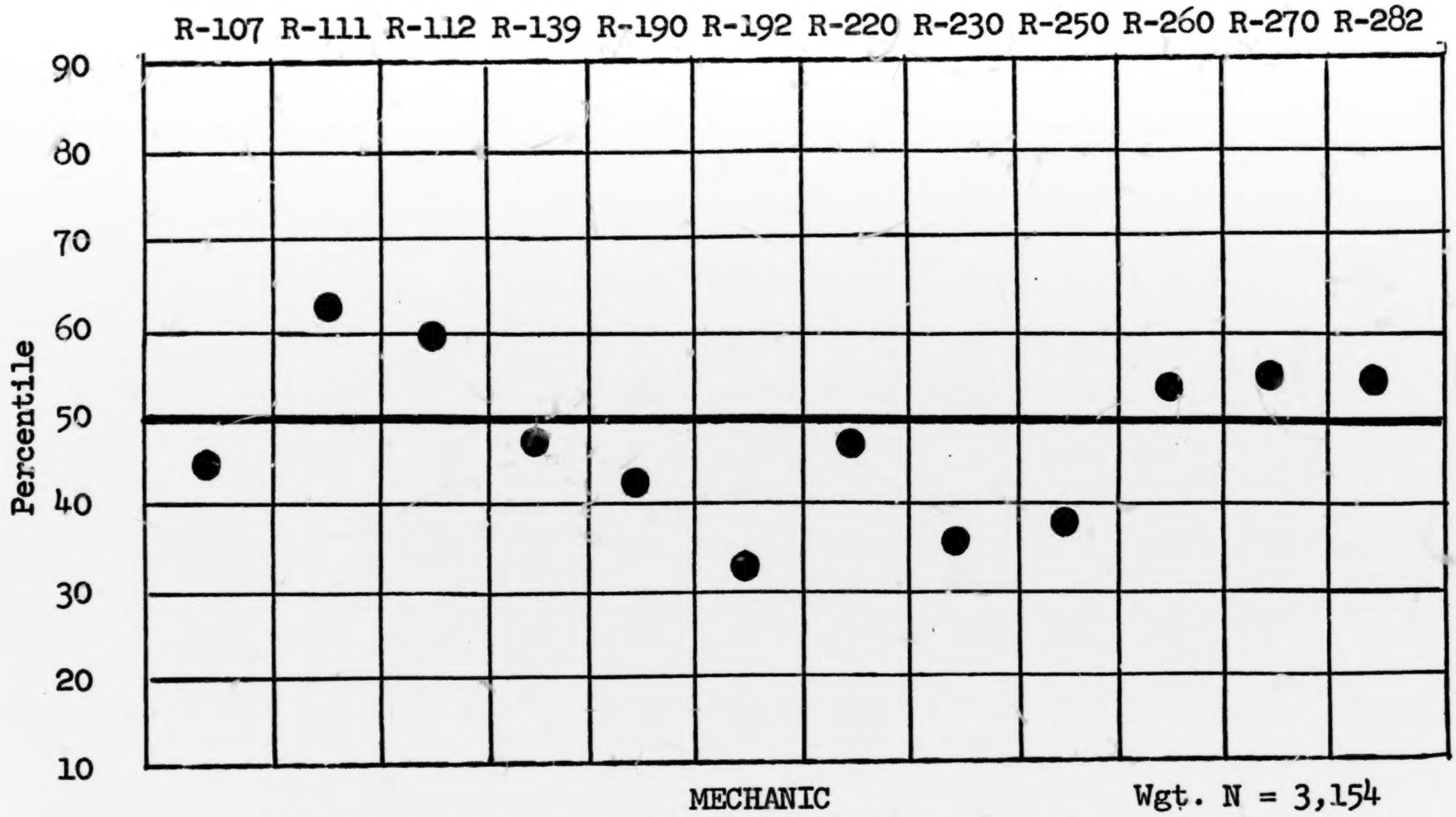


Figure 5-7: Mean Score Mechanic Profile



Patterns of ability tests taken in the 11th-grade by males who one year after high-school graduation are employed in an occupation and indicate career plans in that same area.

Electrical and Mechanical Information (R-111 and R-112) (the mechanics scored higher on both, however), Creativity (R-260), Mechanical Reasoning (R-270), and Visualization in Three Dimensions (R-282). The lowest score for both was on the Information Part II Total (R-192).

As would be expected, the sales group made their highest score on the Accounting, Business, and Sales Information Scale, scoring at the 60th percentile (Figure 5-8). However, 10 out of 11 of their remaining mean scores were below the median with seven of the scores falling below the 40th percentile. This group is composed of sales-clerk types rather than salesmen.

The clerical workers scored consistently near the 11th-grade median on the 12 selected tests (Figure 5-9). Their largest deviations from the median were on Mechanical Information and Mechanical Reasoning (R-112 and R-270). On these tests they were near the 40th percentile level.

In contrast to the profiles presented earlier and those yet to be discussed, the draftsman group appears to be composed of individuals of above average aptitude (Figure 5-10). All mean test scores are at or above the 50th percentile with the majority being in the 60 to 70 percentile range. High scores on Mechanical Reasoning (R-270), Visualization in Three Dimensions (R-282), and Electrical Information (R-111) correspond to what might be expected for this group.

Those enlistees who intend to follow military careers also exhibit a profile not highly divergent from the 11th-grade median (Figure 5-11). Since military service encompasses such a large range of jobs and activities, this finding is somewhat to be expected.

Figure 5-8: Mean Score Salesclerk Profile

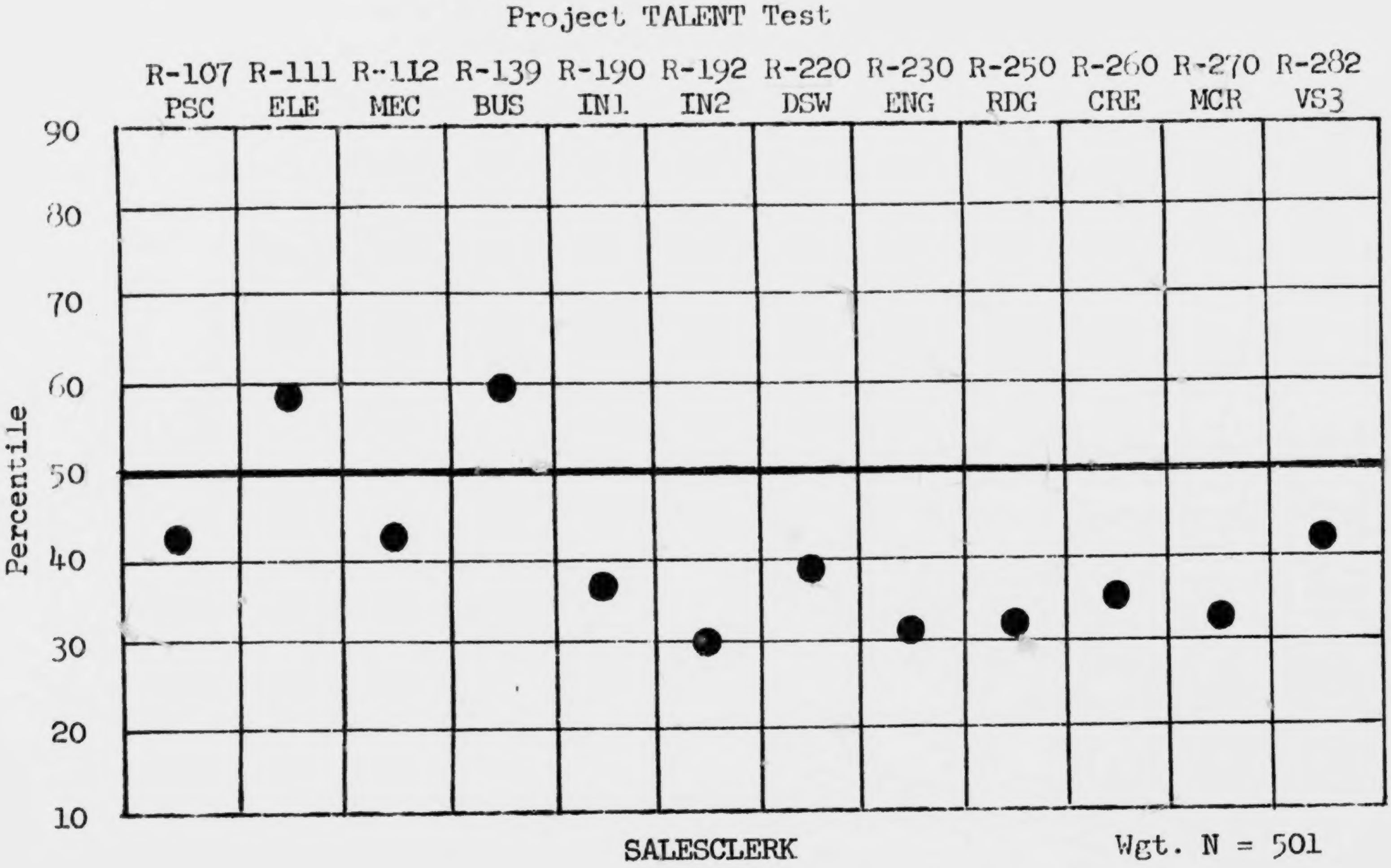
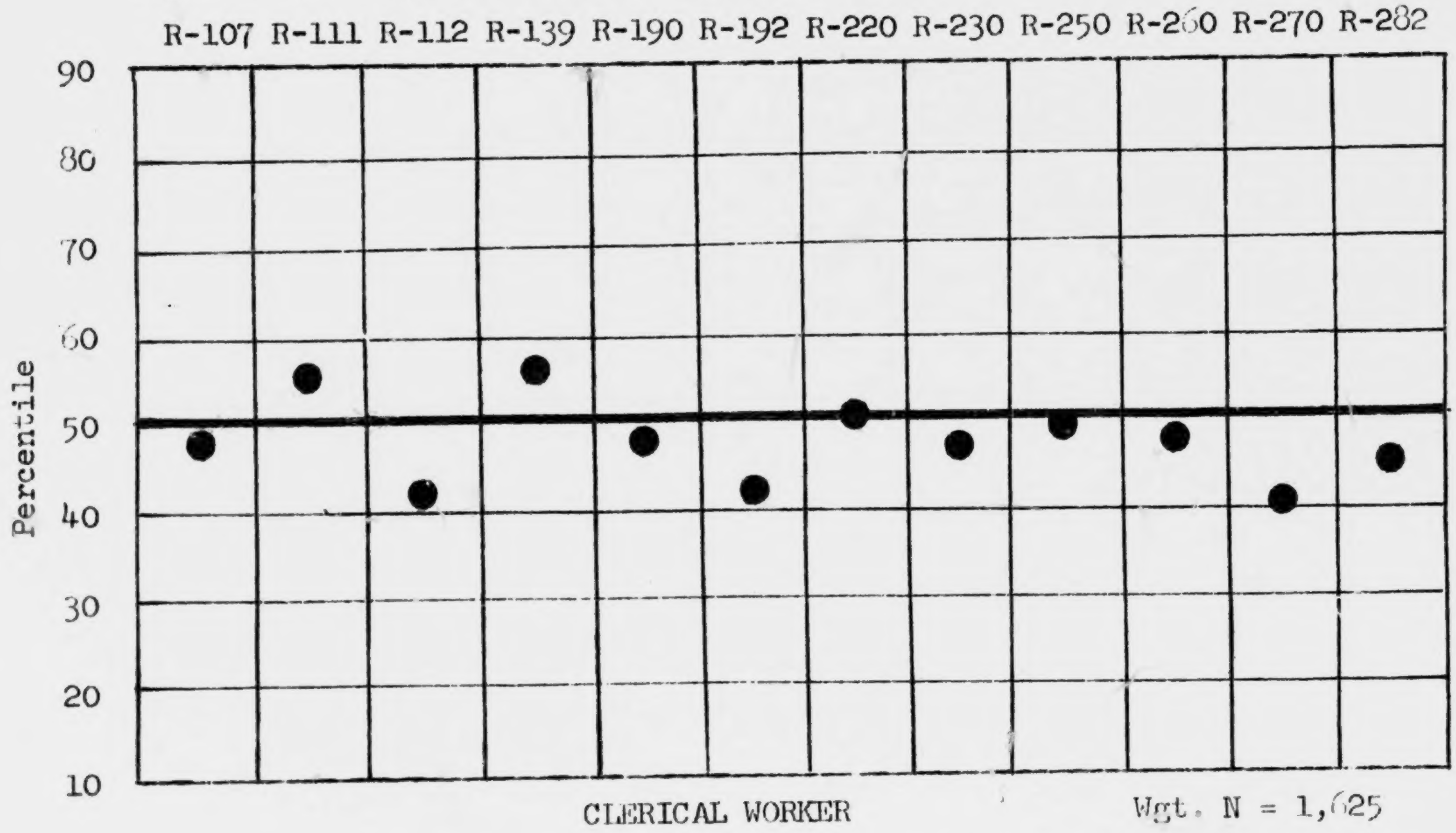


Figure 5-9: Mean Score Clerical Worker Profile



Patterns of ability tests taken in the 11th-grade by males who one year after high-school graduation are employed in an occupation and indicate career plans in that same area.

Figure 5-10: Mean Score Draftsman Profile

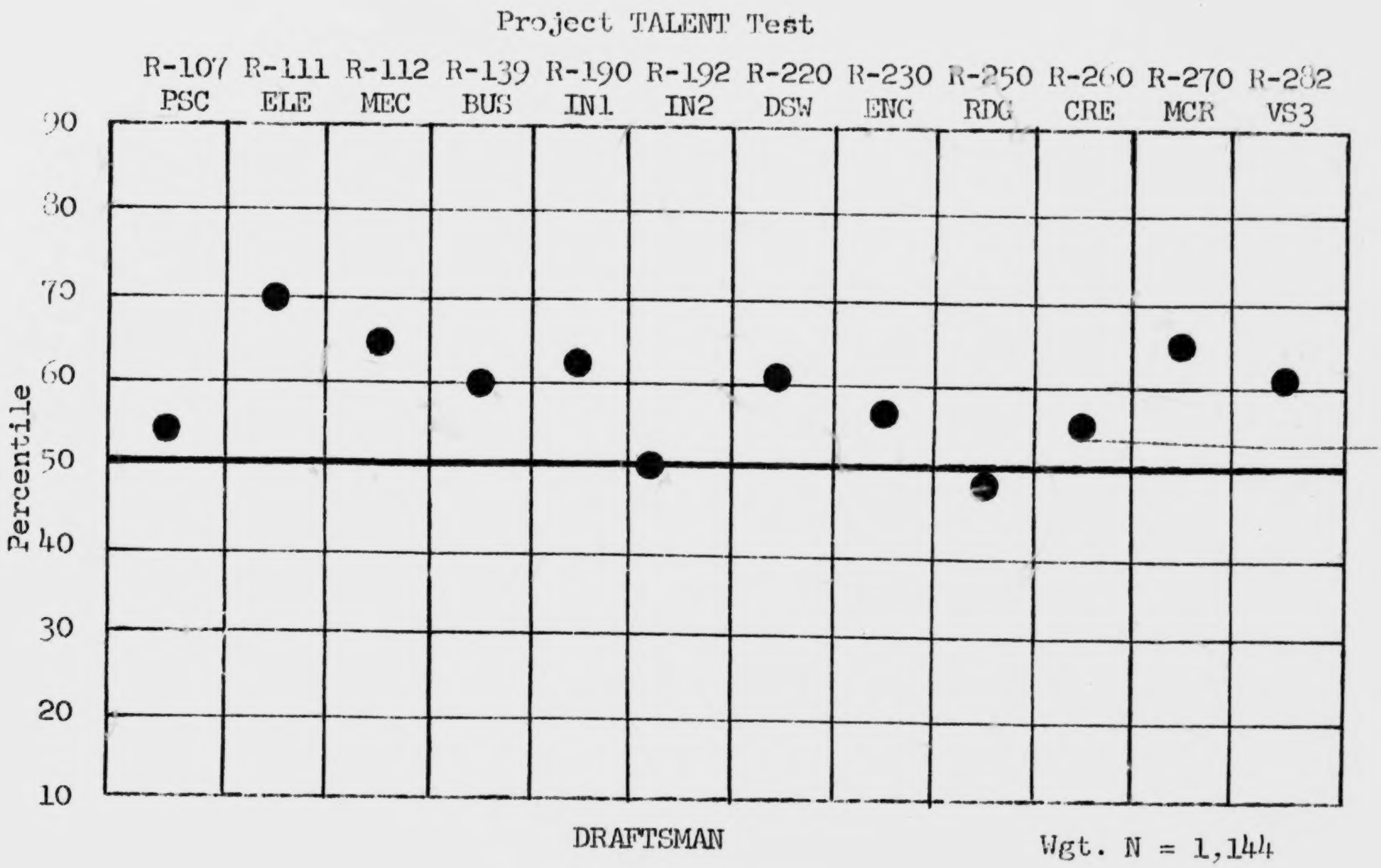
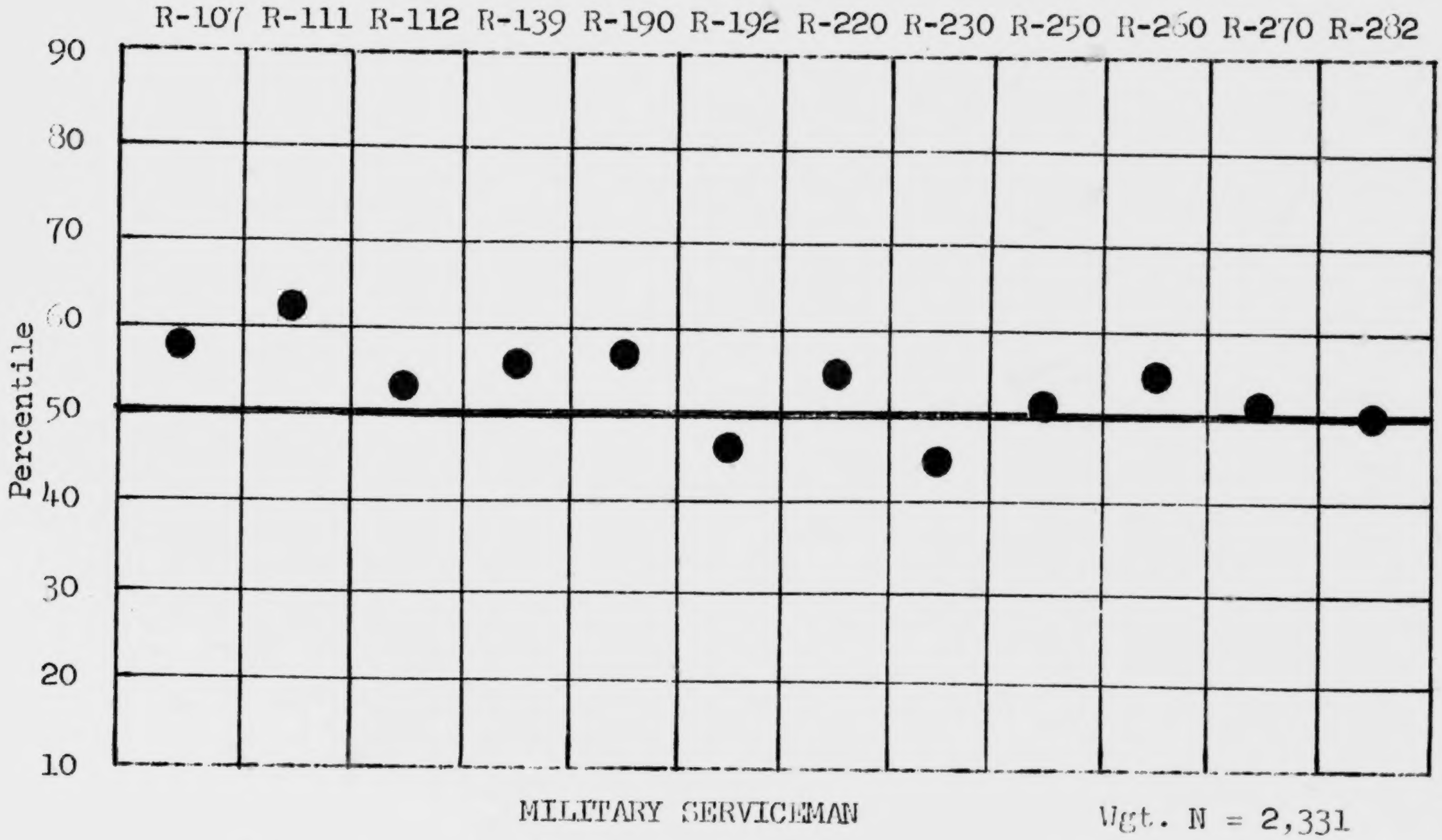


Figure 5-11: Mean Score Military Serviceman Profile



Patterns of ability tests taken in the 11th-grade by males who one year after high-school graduation are employed in an occupation and indicate career plans in that same area.

The service workers and unskilled laborers undoubtedly represent the low end of the continuum in regard to aptitude level necessary for job success. The mean service worker score for the tests ranges from the 33rd to the 20th percentile (Figure 5-12). Although laborers likewise do not have any mean scores above the 11th-grade median, their overall profile is of a considerably higher level than that of the service workers (Figure 5-13).

The profiles discussed within this chapter utilize only a sampling of the Project TALENT tests and occupational groups. Nevertheless, differences of considerable magnitude between vocational groupings and within various occupational categories are apparent. Realizing that career groupings based on data collected one year after high school graduation can only provide tentative aptitude patterns, it is encouraging to note the general agreement between these tentative patterns and expectations based upon other available data. Additional analyses utilizing longer range follow-up data, follow-up data from other grades, different occupational groups, and the entire range of Project TALENT variables will help provide further valuable counseling and guidance information. It is also anticipated that the use of multivariate statistical techniques such as discriminant analysis and canonical correlation will assist greatly in the understanding and assimilation of the extensive number of Project TALENT scores and profiles.

Figure 5-12: Mean Score Service Worker Profile

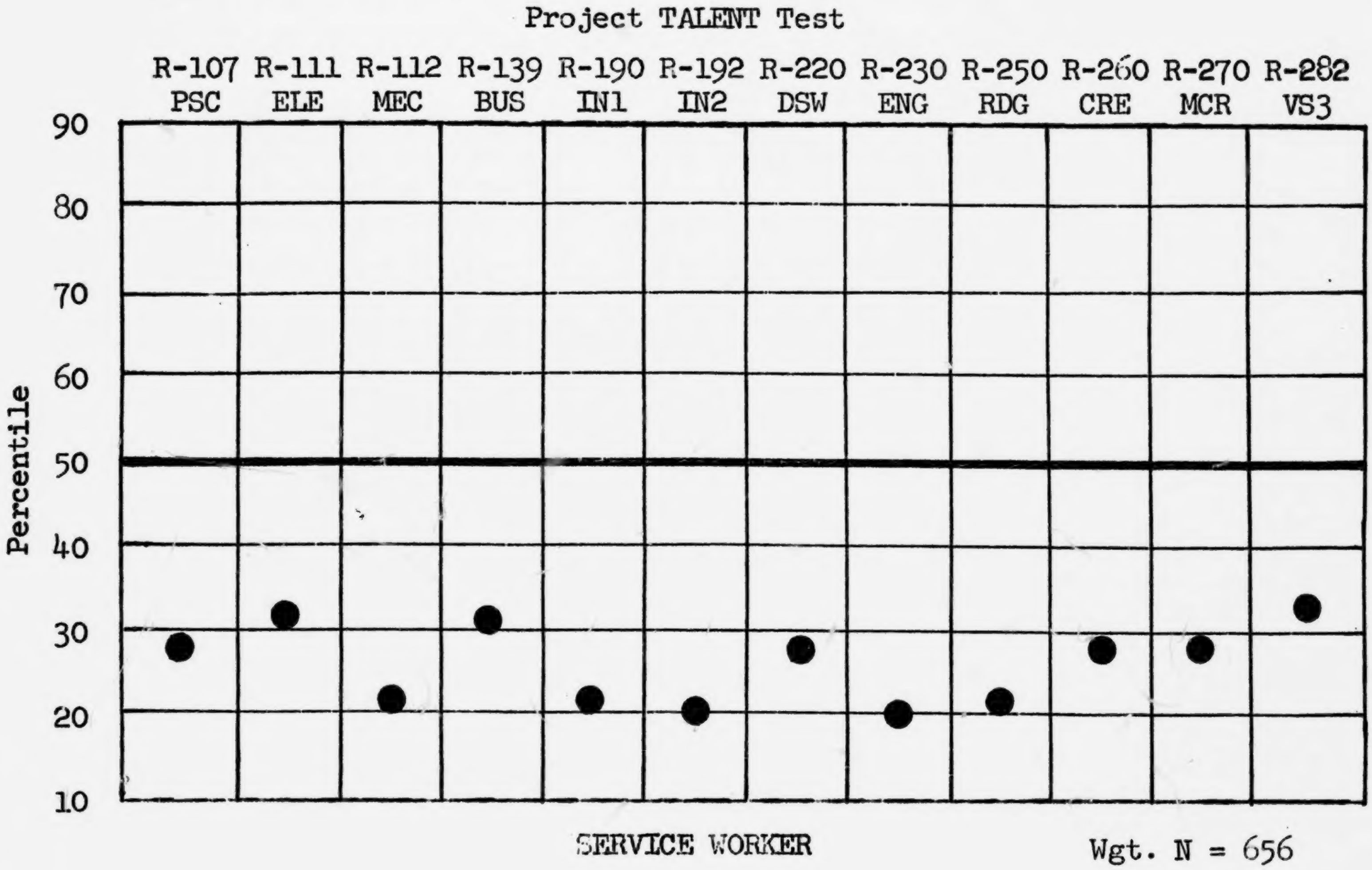
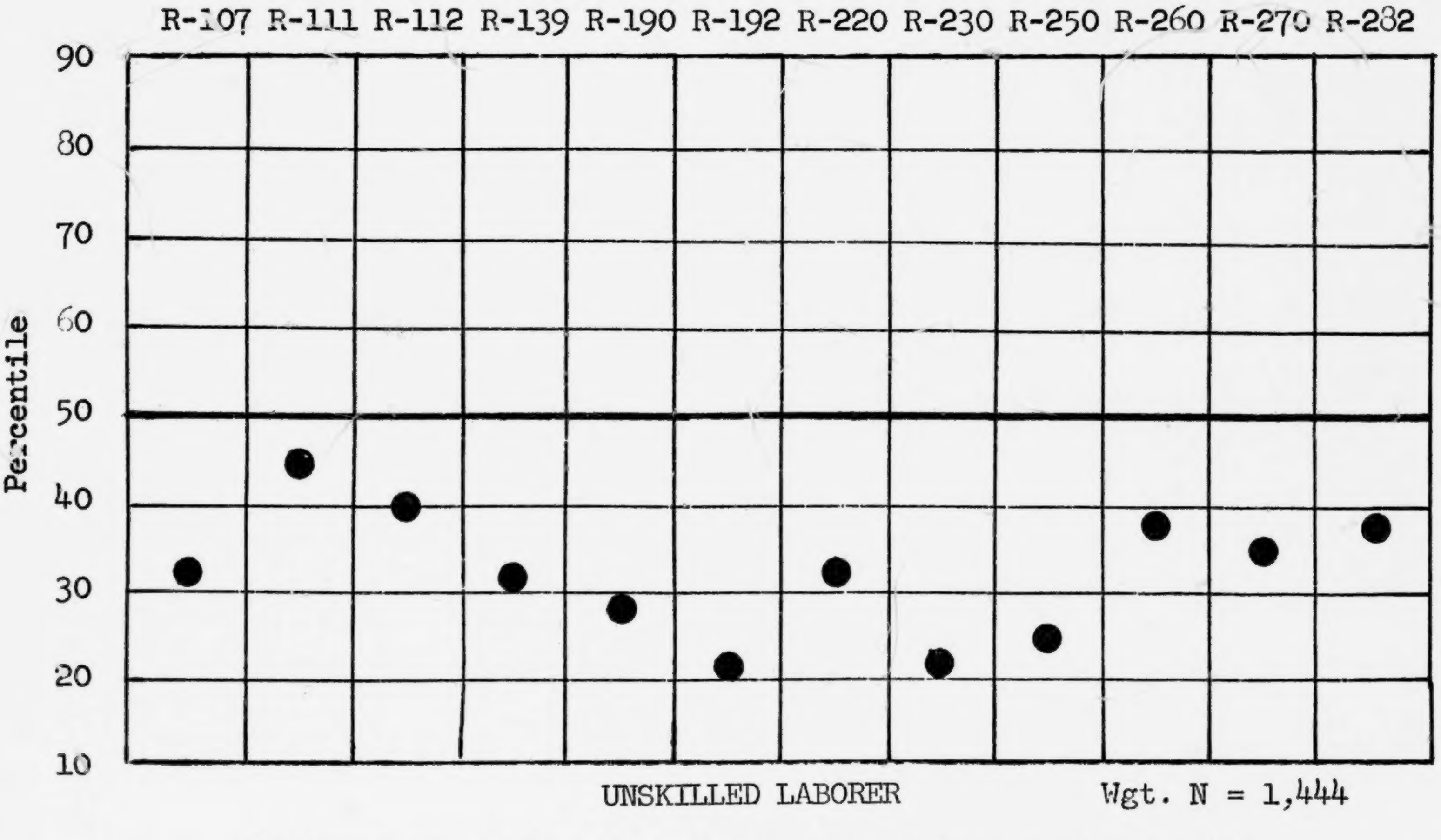


Figure 5-13: Mean Score Unskilled Laborer Profile



Patterns of ability tests taken in the 11th-grade by males who one year after high-school graduation are employed in an occupation and indicate career plans in that same area.

Chapter 6

Changes in Career Plans

In the Project TALENT battery administered in the spring of 1960 the eleventh graders were asked the following question: "In the following list of occupations mark the one occupation you expect to make your career after you have completed your education. If your choice is not on the list, mark the one that is closest to it. Mark one of these even if you have not definitely made up your mind." A list of thirty-six occupational categories followed. This question represents our primary information regarding student career plans as of eleventh grade.

In the follow-up questionnaire administered when the same students were one year out of high school, the students were asked, "What occupation or profession do you plan to make your career? Be specific." A blank space followed this question. In this chapter, these two questions regarding career plans will be examined in order to determine the nature and extent of "migratory behavior" with respect to career plans over that two-year interval. Super (1964) and others have expressed concern about focusing on career plans since career planning is thought to be middle class behavior. That is, lower class students, for example, do not think in terms of "career." In a recently completed longitudinal study of 700 boys, Cooley (1963) found that all 700 boys did in fact have some type of plan. Now, of course, not all these boys talked in terms of long-range careers, but they did have plans which affected their future vocational behavior. Not all plans are in terms of career title, but all boys have plans which affect the sequence of positions which they will occupy after high school, and this is the sense in which we are talking about plans. A book by Miller, Galanter, and Pribram (1960) entitled Plans and the Structure of Behavior presents a basic theoretical development which can serve as the basis for a theory of vocational behavior. In this chapter no attempt will be made to contribute to that theoretical discussion. Rather it is assumed here that the stated plans serve as a basis for action, and the changes in plans that occur over this two-year span will be examined.

A major reason for wanting to contribute to an understanding of student career plans and their relative stability is the possibility of developing a computer-measurement system for guidance which monitors student plans. If students with quite unrealistic plans are to be easily identified an improved theoretical and empirical basis for classifying plans is necessary.

Some Would Rather Switch

In table 6-1 are listed 26 major occupational areas, those which were most frequently mentioned by eleventh grade males. To illustrate how this table is read, refer to row 1, Biological Scientist. At eleventh grade there were 313 boys with plans to be biologists. Of the 313 planning biology in eleventh grade only 45 still had those same plans two years later. In addition to those 45, 204 boys changed from other fields to biology, bringing the post-high-school total to 249. This means that only 14 per cent of the original biology manpower pool were still there two years later (45/313). This represents a net loss to biology of 64 boys and, in terms of percentages, a net change of -20 per cent.

Table 6-1

Stability of Career Plans

(Grade 11 Males)

	Career Plan	(1) Number with Plans at 11th Grade	(2) Number with Same plans Two Years Later	(3) Total Number with Plans Two Years Later	(4) % Stable $\frac{(2)}{(1)}$	(5) % Net Change $\frac{(3)-(1)}{(1)}$
1.	Biological scientist	313	45	249	14	-20
2.	Mathematician	293	39	101	13	-66
3.	Physical scientist	709	185	403	26	-43
4.	Engineer	3332	1068	1724	32	-48
5.	Dentist	291	72	162	25	-44
6.	Pharmacist	247	40	81	16	-67
7.	Physician	527	263	527	50	0
8.	Accountant	556	200	680	36	+21
9.	Businessman	743	200	1133	27	+53
10.	School teacher	776	231	853	30	+10
11.	Lawyer	539	189	485	35	-10
12.	Clergyman	294	148	295	50	0
13.	Social worker, sociologist, psych.	169	26	191	15	+13
14.	Artist or entertainer	292	98	332	34	+14
15.	Writer	92	22	96	24	+4
16.	Armed forces officer	784	95	354	12	-55
17.	Enlisted man in armed forces	314	12	361	4	+15
18.	Police, fireman	245	49	182	20	-26
19.	Barber	72	12	73	17	+1
20.	Salesman	93	14	158	15	+70
21.	Engineering or scientific aide	194	16	279	8	+44
22.	Medical or dental technician	70	4	76	6	+9
23.	Pilot, airplane	405	21	49	5	-88
24.	Farmer	649	248	362	38	-44
25.	Skilled worker	772	229	1343	30	+74
26.	Structural worker	156	22	260	14	+67
27.	All Others	2587		4605		
	Total	15,514	3548	15,514		
	Over-all Stability				27%	

Examining column 1, we get some idea of the relative popularity of these twenty-six career areas. Engineering is by far the most attractive career for these eleventh grade boys. It is more than four times as popular as any other career area. There is, however, a great deal of emigration from engineering as can be seen in columns 2 and 3. Only one-third of the original engineering pool was still there one year out of high school. With only 700 new engineering planners there was a net loss to engineering of 48 per cent.

The opposite is true in business. Of the 743 boys planning business in eleventh grade only 200 were still there two years later. But about 800 new boys were in that pool, showing a net increase of 53 per cent. Although the stability for engineering and business is about the same (32 per cent and 27 per cent respectively), the migration patterns are exactly opposite. In fact, a good deal of the increase in business is due to a shift from engineering to business. Although this is a well-known change in an older age group, this shift in young planners was not previously well established.

Column 4 gives us some indication of the relative holding power of the various career areas. It is interesting to note, for example, that the clergy and physicians have the highest holding power at 50 per cent stable. This indicates a relatively early commitment to these two fields. The most unstable areas are enlistment in the Armed Forces and airplane pilot, with holding power of 4 to 5 per cent.

Column 5 is especially interesting because of the contrast between the professional sciences and the technical, skilled and unskilled workers categories. All of the sciences show net losses, in some cases very high losses, whereas the non-science fields tend to show high percentage increases.

In previous research Cooley (1963) has shown the high stability in career plans which exists when plans are classified in a four by four contingency table based on combinations of two dichotomies, college or not and science-technology or not. The rows of Table 6-2 indicate whether the plan involved college and science, college but not science, not college but a technical worker field, not college and not a technical worker field. Analyzing these data for a sample of the eleventh grade males reveals that within these areas plans are 60 per cent stable. Of course this is a little misleading since, the smaller the number of categories used for classifying plans, the greater the stability will appear to be just by chance alone.* However, the table is useful because it reveals two things. First of all, it shows that the migratory behavior tends to be out of science. This is seen by noticing that the off-diagonal elements in the lower left are lower than the corresponding off-diagonal elements in the upper right of this four by four matrix. We also see that certain types of migrations are almost nonexistent. For example, only 34 of these boys who had planned nontechnical, noncollege careers ended up in college in science.

The other point which is learned in this analysis is that, for this more representative Project TALENT sample, the stability within these four areas does not appear to be as great as in Cooley's original study. In subsequent Project TALENT work other methods of classifying will be sought as a result of these analyses. The following factors will be examined in seeking ways to classify career plans and occupations.

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* Over 30 per cent stable, in this case, just by chance alone.

Table 6-2

Career Plan Changes

	Plans At Grade 11	Follow-Up Plans				
		1 College-Science	2 College-Non-Science	3 Non-College-Technical	4 Non-College Non-Technical	11th Grade Totals
1.	College-Science	2380	1184	538	101	4203
2.	College-Non-Science	340	2166	326	197	3029
3.	Non-College-Technical	337	433	910	108	1788
4.	Non-College-Non-Technical	34	178	142	306	660
		3091	3961	1916	712	9680

60% Stable

1. The psychological similarity of the different types of planners and of eventual incumbents in occupations

2. The nature and extent of the changes in career plans from one occupational type to another

3. The types of educational decisions which aspirants need to make as they move through schools and various occupations

4. The frequency with which a particular plan or occupational group membership occurs

Using these criteria, together with the Project TALENT data, and evolving a theory of career development, it will be possible to develop a very useful scheme for classifying career plans and educational and occupational decisions and positions. Such a scheme would seem to have great potential for guidance in these areas.

Psychological Similarity of Career Plan Groups

In order to illustrate the first criterion, the psychological similarity of different types of planners, an example might be useful. Probably the most relevant statistical technique for assessing the similarity of groups is Mahalanobis D^2. Group membership is based upon 11th grade plans.

Table 6-3 lists the twenty groups used in this illustrative analysis and the distances among all possible pairs of the twenty groups. The matrix is, of course, symmetric because of the nature of this particular distance measure. In this analysis twenty variables were used in order to assess group differences. These twenty variables* contain a mixture of ability measures, interest measures, and temperament measures. The D^2 technique essentially summarizes all of the profile information available on the members of these groups. A large number in this matrix indicates that the groups

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* (listed in Table 6-6)

Table 6-3

MAHALANOBIS DISTANCE MATRIX

	1	2	3	4	5	6	7	8	9	10
1. Accountants	.00	1.38	1.35	1.82	1.11	1.22	1.79	1.30	2.27	1.80
2. Architects	1.38	.00	1.37	1.97	.90	1.26	.82	1.33	1.22	1.21
3. Artists	1.35	1.37	.00	1.96	1.47	1.04	1.91	1.60	2.46	1.93
4. Religion	1.82	1.97	1.96	.00	1.70	2.19	2.16	1.75	2.16	1.40
5. Dentists	1.11	.90	1.47	1.70	.00	1.43	1.30	.92	1.56	1.01
6. Draftsmen	1.22	1.26	1.04	2.19	1.43	.00	1.49	1.91	2.32	2.20
7. Engineers	1.79	.82	1.91	2.16	1.30	1.49	.00	1.80	.98	1.52
8. Lawyers	1.30	1.33	1.60	1.75	.92	1.91	1.80	.00	1.94	1.10
9. Chemists	2.27	1.22	2.46	2.16	1.56	2.32	.98	1.94	.00	1.31
10. Physicians	1.80	1.21	1.93	1.40	1.01	2.20	1.52	1.10	1.31	.00
11. Teachers	1.13	1.38	1.37	1.13	.93	1.58	1.69	1.10	1.78	1.18
12. Biologists	1.33	.78	1.12	1.72	.89	1.22	1.16	1.29	1.18	1.16
13. Farmers	1.62	2.05	1.48	2.34	2.00	1.07	2.29	2.43	3.03	2.74
14. Business	.62	1.22	1.13	1.98	.94	1.03	1.61	1.15	2.14	1.65
15. Armed Forces	.94	.95	.95	1.73	.81	.80	1.32	1.31	1.70	1.41
16. Police, firemen	1.13	1.89	.98	1.97	1.67	1.05	2.34	1.77	2.98	2.40
17. Electricians	1.48	1.56	1.11	2.17	1.67	.67	1.86	2.03	2.55	2.32
18. Electronic tech.	1.41	1.18	1.19	2.04	1.45	.66	1.26	1.90	1.90	2.03
19. Mechanics	1.83	2.01	1.46	2.54	1.99	.95	2.16	2.39	3.02	2.74
20. Mechinists	1.51	1.74	1.26	2.39	1.97	.72	1.99	2.31	2.75	2.65

Table 6-3 (cont.)

MAHALANOBIS DISTANCE MATRIX

	11	12	13	14	15	16	17	18	19	20
1. Accountants	1.13	1.33	1.62	.62	.94	1.13	1.48	1.41	1.83	1.51
2. Architects	1.38	.78	2.05	1.22	.95	1.89	1.56	1.18	2.01	1.74
3. Artists	1.37	1.12	1.48	1.13	.95	.98	1.11	1.19	1.46	1.26
4. Religion	1.13	1.72	2.34	1.98	1.73	1.97	2.17	2.04	2.54	2.39
5. Dentists	.93	.89	2.00	.94	.81	1.67	1.67	1.45	1.99	1.97
6. Draftsmen	1.58	1.22	1.07	1.03	.80	1.05	.67	.66	.95	.72
7. Engineers	1.69	1.16	2.29	1.61	1.32	2.34	1.86	1.26	2.16	1.99
8. Lawyers	1.10	1.29	2.43	1.15	1.31	1.77	2.03	1.90	2.39	2.31
9. Chemists	1.78	1.18	3.03	2.14	1.70	2.98	2.55	1.90	3.02	2.75
10. Physicians	1.18	1.16	2.74	1.65	1.41	2.40	2.32	2.03	2.74	2.65
11. Teachers	.00	.98	1.80	1.24	.93	1.35	1.56	1.45	2.02	1.85
12. Biologists	.98	.00	1.60	1.19	.73	1.40	1.30	1.09	1.68	1.54
13. Farmers	1.80	1.60	.00	1.46	1.21	1.07	.85	1.18	.82	.93
14. Business	1.24	1.19	1.46	.00	.82	.95	1.27	1.28	1.51	1.36
15. Armed Forces	.93	.73	1.21	.82	.00	.85	.87	.84	1.25	1.22
16. Police, firemen	1.35	1.40	1.07	.95	.85	.00	1.00	1.24	1.17	1.07
17. Electricians	1.56	1.30	.85	1.27	.87	1.00	.00	.61	.65	.66
18. Electronic tech.	1.45	1.09	1.18	1.28	.84	1.24	.61	.00	1.02	.89
19. Mechanics	2.02	1.68	.82	1.51	1.25	1.17	.65	1.02	.00	.81
20. Mechinists	1.85	1.54	.93	1.36	1.22	1.07	.66	.89	.81	.00

Table 6-4

Group Centroids In Discriminant Space

		Function 1	Function 2
1	Accountants	10.91	-7.99
2	Architects	13.53	-1.53
3	Artists	9.76	-7.00
4	Clergymen	16.02	-11.02
5	Dentists	14.01	-5.33
6	Draftsmen	7.62	-3.84
7	Engineers	13.86	1.17
8	Lawyers	16.16	-9.02
9	Chemists	17.28	1.12
10	Physicians	18.09	-5.44
11	Teachers	13.76	-8.75
12	Biologists	13.07	-3.56
13	Farmers	5.26	-6.37
14	Businessmen	10.37	-7.37
15	Armed forces	10.51	-5.44
16	Police, firemen	7.38	-8.56
17	Electricians	6.46	-4.19
18	Electronics	8.43	-1.74
19	Mechanics	4.23	-4.51
20	Machinists	5.23	-3.79

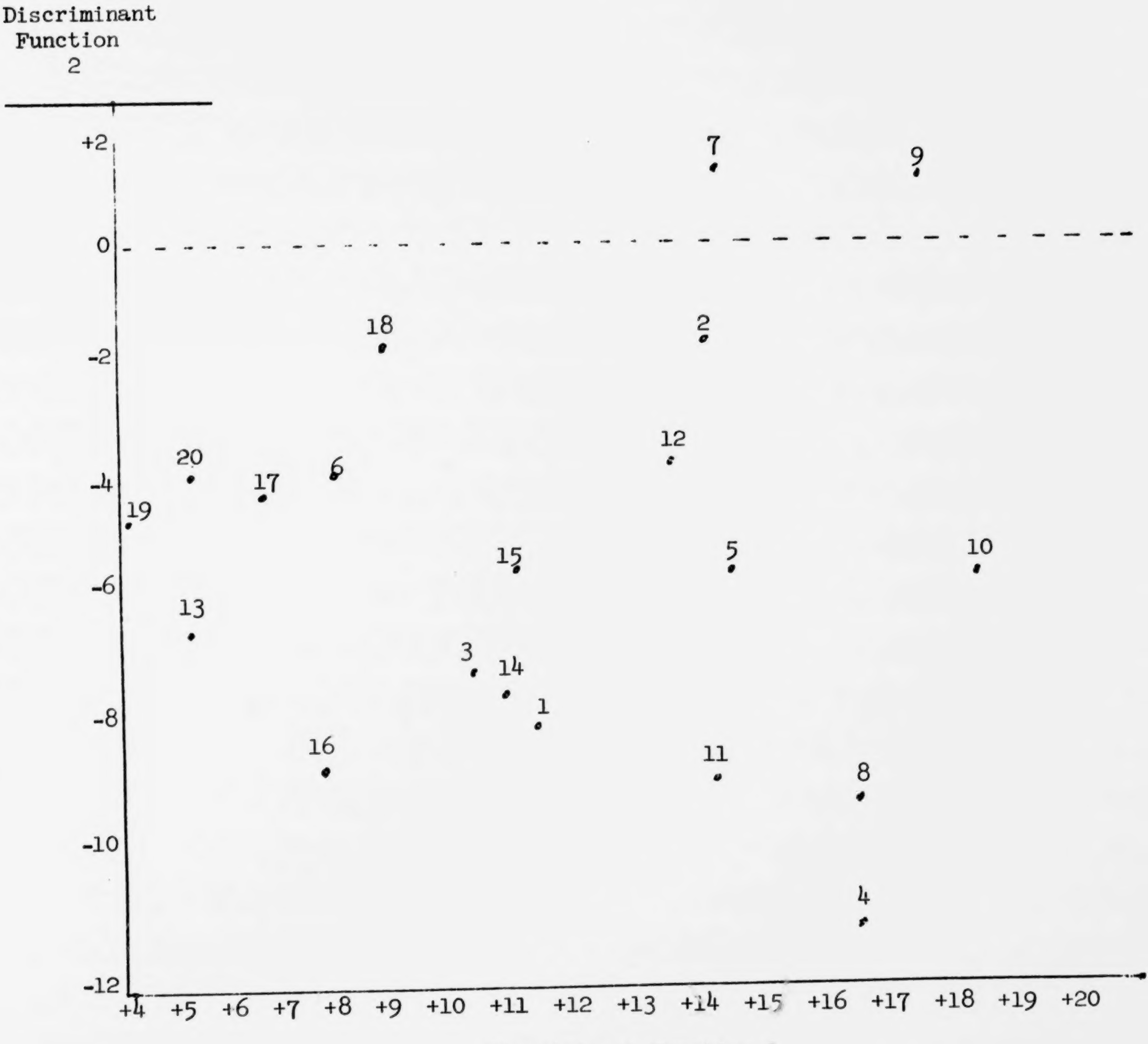
are very dissimilar on these twenty variables and a small number indicates that the groups are very similar in profile. Examination of the matrix reveals, for example, that the two most similar groups are electricians and electronic technicians in terms of overall profile. About equally similar are accountants and businessmen. They have D^2 values of .61 and .62 respectively. The two most dissimilar group patterns were farmers and chemists (3.03) and policemen-firemen and chemists (2.98).

It is interesting to note that the F ratios determining the statistical significance of the D^2 indicate that all groups are significantly different from all other groups. This probability is less than .01 even for a D^2 of .61. This technique will be used to reconsider whether we want to pool, for example, different types of businessmen in the first place in order to achieve maximum homogeneity of the various groups used. Inspection of the columns of Table 6-3 reveals that column 15, the armed forces group, has the smallest group differences. That is, the average distance of the armed forces group from the other groups is smaller than for any other single group. This, together with the fact that the armed forces group exhibits a lot of within group variation means that this is a rather poor group to use as a criterion group. When dealing with military men in this type of study it appears best to classify them functionally according to what they do in the Armed Forces. This was done in classifying follow-up questionnaire respondents.

In order to further explore the psychological differences among these 20 groups a discriminant analysis was performed using the same 20 variables used in the Mahalanobis D^2 analysis. One advantage of discriminant analysis is that it reduces the discriminating information available in the 20 original dimensions to relatively few discriminant functions. In the discriminant analysis of the 20 groups two discriminant functions preserve most of

Figure 6-1

GROUP CENTROIDS IN DISCRIMINANT SPACE



the information regarding the differences among the 20 groups. The locations of each of the 20 groups on these two primary discriminant functions are indicated on Table 6-4. Also, Figure 6-1 is presented in order to help the reader visualize the location of these 20 groups in the two-dimensional discriminant space.

Inspection of Figure 6-1 shows that the engineers (7), chemists (9), and architects (2), are in the upper right-hand region of the space; teachers (11), lawyers (8), and clergymen (4), are in the lower right-hand region of the space; and clustered over on the left are mechanics, machinists, farmers, and electricians. Once again the lack of distinctiveness of the military group comes through, since group 15 is right in the middle of this discriminant space. Discriminant function 1 is primarily a general ability function with doctors highest, followed by chemists, lawyers, clergymen, and dentists. Mechanics are at the low end. Discriminant function 2 tends to put the scientists at the high end and the more people-oriented groups such as clergymen, lawyers, teachers, and policemen at the low end.

The 20 variables or predictors used here and their relative predictive power can be seen in Tables 6-5 and 6-6. Table 6-5 lists the discriminant vectors, which are the weights applied to each of the variables when arriving at a group's location on discriminant function 1 and discriminant function 2. In terms of the variables, the first function seems to be intellectual-mathematical vs. practical-mechanical abilities and interests whereas the second function is more specifically a science versus social discrimination.

The relative power of the 20 variables can be seen in the column of F ratios in Table 6-6. With the exception of the mechanical information test, we can see the great power of the information scales in helping to discriminate among these 20 groups. The set of variables exhibiting the lowest discriminating power are the three temperament scales based on student activities (sociability, tidiness, and mature personality). We expect that further investigations into the career choice process will continue to reveal the great potency of these information scales for predicting career choice and the subsequent changes in careers which occur over time.

For those readers interested in the differences between specific groups on individual variables, the matrix of 400 means for the 20 groups on the 20 variables are presented in Table 6-7. Rows of the table correspond to variables and columns correspond to the 20 groups.

Suggestions for Further Research

One exciting aspect of the large Project TALENT sample size is that it will finally make it possible to study the migrators themselves. For example, it will be possible to compare those who move from plan A to plan B with those who stay in A and those who stay in B. This type of information should be quite useful in trying to explain why the migrators held plan A in the first place and why they decided to change that plan. These Project TALENT data will make it possible to study this phenomenon quite extensively, especially when the five-year follow-up study data are available and some degree of career stability begins to emerge.

Table 6-5

Scaled Discriminant Functions

			Function I	Function II
1.	R 103	Literature info	.20	-.20
2.	R 105	Social studies info	-.09	-.05
3.	R 106	Math info	.50	.10
4.	R 107	Science info	.22	.07
5.	R 112	Mechanical info	-.24	.13
6.	R 115	Sports info	.17	-.07
7.	R 139	Business info	.07	-.10
8.	R 142	Bible info	.25	-.21
9.	R 260	Creativity	-.02	.05
10.	R 270	Mechanical reasoning	-.33	.14
11.	R 290	Abstract reasoning	.04	.04
12.	R 340	Math total	.25	.09
13.	R 601	Sociability	.04	-.06
14.	R 606	Tidiness	.15	-.04
15.	R 610	Mature personality	.01	-.04
16.	F 701	Physical science	.02	.80
17.	F 704	Literary-Linguistic	.36	-.18
18.	F 705	Social service	.21	-.38
19.	F 710	Business management	-.32	-.12
20.	R 230	English total	.16	-.19

Table 6-6

F RATIOS FOR INDIVIDUAL VARIABLES[a]

	Among Mean Sqr	Within Mean Sqr	F Ratio[b]
1. R 103 Literature Info	774.885	15.597	49.68
2. R 105 Social studies info	674.813	18.692	36.10
3. R 106 Math info	1801.867	24.532	73.45
4. R 107 Science info	617.303	12.955	47.65
5. R 112 Mechanical info	89.195	9.402	9.49
6. R 115 Sports info	210.185	6.814	30.85
7. R 139 Accounting, business info	76.618	3.238	23.66
8. R 142 Bible info	342.692	9.520	36.00
9. R 260 Creativity	273.332	14.671	18.63
10. R 270 Mechanical reasoning	186.087	12.828	14.51
11. R 290 Abstract reasoning	129.639	6.506	19.93
12. R 340 Math total	4989.550	79.356	62.88
13. R 601 Sociability	51.238	8.553	5.99
14. R 606 Tidiness	44.839	7.937	5.65
15. R 610 Mature personality	241.297	28.324	8.52
16. F 701 Physical science interest	5001.458	142.780	35.03
17. F 704 Literary-linguistic interest	2725.932	128.897	21.15
18. F 705 Social service interest	979.300	61.068	16.04
19. F 710 Business management interest	796.777	91.026	8.75
20. R 230 English total	5104.467	117.140	43.58

[a] The means for this table are in Appendix

[b] Number of degrees of freedom are 19 and 3779. All are significant at the .01 level.

Table 6-7

The Roster of Group Means*

		Accountants	Architects	Artists	Clergy	Dentists	Draftsmen	Engineers	Lawyers	Chemists	Physicians
1	R 103	14.17	15.86	14.32	15.52	15.87	12.94	15.44	17.33	17.40	17.78
2	R 105	18.04	19.32	16.88	18.73	18.95	16.07	18.99	20.00	20.85	19.94
3	R 106	12.00	15.43	10.65	13.58	14.94	10.41	16.40	15.11	17.87	17.03
4	R 107	10.07	12.67	10.07	11.69	12.33	9.65	13.23	12.38	14.86	13.81
5	R 112	12.44	13.95	12.58	12.47	13.94	13.21	14.66	13.22	14.58	14.10
6	R 115	9.23	9.65	8.47	8.95	10.12	8.11	9.35	10.32	10.20	10.33
7	R 142	5.59	5.61	5.01	5.28	5.68	4.72	5.65	6.19	6.23	6.24
8	R 139	7.43	8.36	7.69	11.12	8.29	6.86	8.37	9.24	9.51	10.01
9	R 260	10.04	12.37	10.85	11.28	11.35	9.89	12.40	11.71	12.97	12.40
10	R 270	12.67	15.47	13.69	13.48	14.65	14.23	15.89	13.47	15.84	14.73
11	R 290	9.85	11.30	10.14	10.35	10.58	10.06	11.08	10.29	11.31	11.32
12	R 340	27.42	32.25	22.48	29.97	31.33	24.33	34.55	32.32	36.77	35.48
13	R 601	6.75	6.40	6.03	6.33	7.35	6.13	5.54	7.37	5.49	6.55
14	R 606	5.76	5.79	5.69	6.29	5.95	5.27	5.56	6.13	5.58	5.78
15	R 610	11.34	12.07	11.20	13.43	12.79	10.63	13.08	13.13	12.85	13.49
16	F 701	49.05	40.73	50.05	47.73	43.88	46.33	35.24	47.30	33.42	40.96
17	F 704	54.11	52.81	52.11	48.34	50.47	56.01	52.90	45.70	50.77	46.58
18	F 705	39.69	42.09	41.71	33.88	39.35	41.47	40.88	39.46	40.41	37.45
19	F 710	40.74	44.65	45.83	44.87	42.09	43.79	43.93	40.23	47.05	43.77
20	R 230	84.01	86.99	82.19	89.07	88.36	79.86	87.39	90.00	90.74	91.91

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*In this computer printout high means for the interest scores are indicative of disinterest and low means indicate high interest. This inversion of the usual interest scaling will be corrected in future reports.

Table 6-7 (continued)

		Teachers	Biologists	Farmers	Business	Armed Forces	Police	Electricians	Electrical Technicians	Mechanics	Machinists
1	R 103	15.05	15.69	11.03	14.16	14.13	12.58	12.26	13.05	11.38	11.94
2	R 105	18.98	19.45	15.24	17.32	17.24	16.21	15.35	16.71	14.28	15.45
3	R 106	13.26	14.12	6.44	11.74	11.65	8.29	9.24	11.33	7.93	8.50
4	R 107	11.68	12.63	8.77	9.91	10.77	8.97	9.55	11.18	8.73	9.32
5	R 112	12.73	14.01	13.13	13.16	13.03	12.31	13.38	13.83	13.48	13.48
6	R 115	9.57	9.53	7.42	9.28	8.83	8.06	7.44	7.92	7.19	7.38
7	R 139	5.34	5.48	4.33	5.49	4.96	4.88	4.30	4.71	4.21	4.70
8	R 142	8.50	8.50	6.40	7.37	7.85	7.19	6.60	7.13	6.07	6.04
9	R 260	10.80	11.97	8.95	10.55	10.20	9.63	9.55	10.30	9.11	9.94
10	R 270	13.40	15.05	13.42	13.22	13.69	12.32	13.17	14.39	13.70	13.92
11	R 290	9.91	10.52	8.78	9.92	9.50	8.75	9.07	9.85	8.75	9.05
12	R 340	28.31	30.69	21.69	27.13	26.09	21.15	21.63	25.42	20.61	21.90
13	R 601	6.72	5.78	5.68	6.86	6.35	6.38	6.02	6.05	6.08	5.61
14	R 606	5.52	5.31	4.66	5.57	5.26	5.31	4.82	5.03	4.40	5.04
15	R 610	11.98	12.05	11.29	11.43	11.14	11.09	10.26	10.81	9.78	10.14
16	F 701	46.98	43.81	52.81	48.92	45.23	51.38	47.52	43.03	51.97	48.29
17	F 704	48.94	52.30	58.75	52.30	51.98	52.94	56.01	56.07	58.66	58.39
18	F 705	35.53	41.00	41.50	40.92	39.65	40.45	41.25	41.18	43.63	41.80
19	F 710	43.05	46.42	45.91	40.60	42.89	42.34	44.79	45.18	46.49	44.78
20	R 230	85.42	86.74	77.56	84.77	82.40	78.26	76.98	79.51	74.87	77.52

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APPENDIX A

THE FOLLOW-UP INSTRUMENTS FOR THE STUDENTS WHO WERE JUNIORS WHEN TESTED IN 1960

	Page
The 8-page Experimental Form 1-Ble	A-2
The 4-page Experimental Form 1-Bla	A-8
The Regular Questionnaire	A-10
The Questionnaire for the Special Survey of Non-Respondents	A-13

THERE ARE FOUR PARTS TO THIS BOOKLET. IF YOU HAVE NEVER ATTENDED COLLEGE YOU NEED ANSWER ONLY THE FIRST THREE PARTS

YOU CAN PROBABLY FILL OUT THIS FORM IN ABOUT 15 MINUTES

PLEASE DO NOT WRITE IN THIS AREA.

Today's Date ______________________
Month Day Year

Date of Birth ______________________
Month Day Year

Check one:
1 ☐ **Male**
2 ☐ **Female**
9

In the spaces below, please print the name and address of someone who is most likely to know your address at any time:

Name ______________________

Address ______________________

City ______________ State ______________

DIRECTIONS:
Please be sure to answer every question below. Most of the questions can be answered by just marking an X in the box to the left of the answer you choose. Do not skip any questions. Mark only one answer to each question except where instructed to mark more than one.

PART I. *EDUCATION*

PLEASE DO NOT WRITE IN THIS AREA.

1. Did you graduate from high school?
1 ☐ **Yes**
0 ☐ **No**
9

2. Have you attended college since leaving high school?
1 ☐ **Yes, as a full-time student.**
2 ☐ **Yes, as a part-time student.**
3 ☐ **Yes, I entered but have dropped out temporarily.**
4 ☐ **Yes, I entered but dropped out and do not plan to return.**
5 ☐ **No, but I plan to enter college within a year or two.**
6 ☐ **No, but I plan to enter college eventually; I have no idea when.**
7 ☐ **No, and I have no plans to do so.**
9

3. Since leaving high school have you attended a school other than a college?
1 ☐ **Yes, as a full-time student.**
2 ☐ **Yes, as a part-time student.**
3 ☐ **No, and I have no plans to do so.**
4 ☐ **No, but I plan to get some more non-college schooling.**
9

4. Which of the following kinds of school diploma or certificate do you plan to obtain? (Mark as many as apply.)
0 ☐ No further schooling planned
1 ☐ A college degree (4 years or more of college)
2 ☐ A junior college diploma or degree
3 ☐ R.N. (Registered Nurse Certificate)
4 ☐ Practical nursing certificate
5 ☐ A business school or secretarial diploma
6 ☐ Diploma or certificate based upon apprenticeship training, on-the-job training, or technical or trade school. Please describe:
____
(—) 9 ☐ Other. Please specify: ______________________
____
0

PLEASE DO NOT WRITE IN THIS AREA.

5. What kinds of school have you attended since leaving high school? (Mark as many as apply.) Please fill in name and location below.
Z ☐ None
AZ ☐ A college offering bachelor's degree or higher
BZ ☐ A junior or community college
C ☐ A technical institute
D ☐ A school of nursing (3-yr. program)
J ☐ A school of practical nursing
K ☐ A business school
L ☐ A trade school
M ☐ An armed forces enlisted school
R ☐ Other (please specify)
Z ______________________

Name and location of present or most recent school attended since leaving high school.

School ______________________

City ______________ State ______________

6. Answer this question if you have never attended college; otherwise omit it.
Did you WANT to go to college?

PLEASE DO NOT WRITE IN THIS AREA.

NO
A ☐ No, I wanted to earn money.
B ☐ No, I wanted to get married.
C ☐ No, I wanted to go into the military service at once.
D ☐ No, I was more interested in going to some other kind of school.
I ☐ No, for some other reason than above. Please specify: ______________________
____

YES
J ☐ Yes, but I couldn't afford it.
K ☐ Yes, but I couldn't because of a family emergency.
L ☐ Yes, but I couldn't because I was married.
M ☐ Yes, but I wasn't qualified because I hadn't taken college preparatory courses required for admission.
N ☐ Yes, but I didn't apply because my grades weren't good enough.
O ☐ Yes, I applied but wasn't accepted.
R ☐ Yes, but I didn't go for some other reason. Please specify:
____
____ Z

PART II. *WORK EXPERIENCE*

•••
••
••••
7. What is your Social Security number?

___ ___ ___ - ___ ___ - ___ ___ ___ ___

If none, check here ________

Questions 8-14 refer to the FIRST full-time job you had after leaving high school. Include summer jobs or other temporary jobs you had after leaving high school, if they were full-time.

8. How many different full-time jobs (35 hrs. per week) have you had since you left high school?

0999 ☐ None
1 ☐ One
2 ☐ Two
3 ☐ Three or more
9

If your answer to the above question was "None", please skip to Question 15. Otherwise answer Questions 9-14.

PLEASE DO NOT WRITE IN THIS AREA.

9. How long did it take you to find the first full-time job you had since high school?

0 ☐ I found it before I left high school
1 ☐ Less than a week
2 ☐ 1 to 2 weeks
3 ☐ 2 to 4 weeks
4 ☐ 1 to 2 months
5 ☐ 2 to 4 months
6 ☐ 4 to 6 months
7 ☐ Longer than 6 months
9

10. When did you start this first full-time job?

0 ☐ Before May 1961
1 ☐ In May or June 1961
2 ☐ In July or August 1961
3 ☐ In September or October 1961
4 ☐ In November or December 1961
5 ☐ In January or February 1962
6 ☐ In March or April 1962
9

11. How did you get your first full-time job?

0 ☐ Through a friend or relative
1 ☐ Through my high school
2 ☐ Through another school
3 ☐ Through a union or bargaining group
4 ☐ Through the U. S. Employment Service
5 ☐ Through another public employment agency
6 ☐ Through a private employment agency
7 ☐ By answering an advertisement
8 ☐ By applying directly to a person or company that might be hiring
(__) ☐ Other. Please specify: ____________

____
9

12. What was your starting pay (before deductions), on your FIRST full-time job? Fill in ONE of the lines below.

9•••• $____________ per week
OR
1•••• $____________ per month
00000

13. What was your job called?

____

14. What did you do on this job? Please be specific:

____

____

15. Did you have a paid job in April 1962?

1 ☐ Yes, a full-time job (35 hours per week or more)
2 ☐ Yes, part-time work (less than 35 hrs. per week)
3 ☐ No, but I was looking for a full-time job.
4 ☐ No, but I was looking for part-time work. (I did not want a full-time job.)
5 ☐ No, I was going to school, and did not want a job.
6 ☐ No, I am a housewife, and was not looking for an outside job.
7 ☐ No. I was not looking for a job for reasons other than those listed above.
9

PLEASE DO NOT WRITE IN THIS AREA.

Answer Questions 16-20 ONLY if you had a full-time job in Apr. 1962. Otherwise skip to Question 21.

16. What was your pay (before deductions), on this full-time job? Please fill in ONE of the lines below.

9•••• $____________ per week
OR
1•••• $____________ per month
00000

17. What is the job called?

____

18. Tell what you do (or did) on this job. Please be specific:

____

____

19. How well do (or did) you like this type of work?

3 ☐ Very well
2 ☐ Fairly well
1 ☐ Not very well
0 ☐ Not at all
9

20. How long do you plan to stay in the same type of work?

4 ☐ I plan to make it my career.
3 ☐ At present I have no plans to change.
2 ☐ Probably a few years.
1 ☐ I plan to change soon.
9

21. About how long were you unemployed (and looking for a full-time job) between June 1, 1961 and April 1962?

R ☐ I did not want a full-time job.
A ☐ Not at all
B ☐ Less than a week
C ☐ 1 to 2 weeks
D ☐ 2 to 4 weeks
E ☐ 1 to 2 months
F ☐ 2 to 4 months
G ☐ 4 to 6 months
H ☐ More than 6 months
Z

22. In regard to jobs or careers, which ONE of the following is most important to you? Please mark only ONE.

MOST IMPORTANT (Please mark only one.)

A ☐ Starting salary
B ☐ Future salary
C ☐ Working conditions
D ☐ Job security
E ☐ Good supervisors
F ☐ Good fellow-workers
G ☐ Importance of work
H ☐ Opportunity for promotion
I ☐ Good fringe benefits
J ☐ Serving others
K ☐ Personal interest in work
Z

PLEASE DO NOT WRITE IN THIS AREA.

23. In regard to jobs or careers, which ONE of the following is the NEXT MOST IMPORTANT to you?

NEXT MOST IMPORTANT (Please mark only one.)

A ☐ Starting salary
B ☐ Future salary
C ☐ Working conditions
D ☐ Job security
E ☐ Good supervisors
F ☐ Good fellow-workers
G ☐ Importance of work
H ☐ Opportunity for promotion
I ☐ Good fringe benefits
J ☐ Serving others
K ☐ Personal interest in work
Z

24. What occupation do you expect to make your career? Please be specific:

____

PART III. *GENERAL QUESTIONS*

25. What do you wish you had done differently in high school? Mark as many as apply.

☐①a. I wish I had studied more.
☐②b. I wish I had taken more college preparatory courses.
☐④c. I wish I had taken more vocational work.
1-(0)
☐ d. I wish I had had more social life.

PLEASE DO NOT WRITE IN THIS AREA.

26. Are you married?

11 ☐ Yes, I married while still in high school.
12 ☐ Yes, I married after leaving high school.
0- ☐ No
9-

If not, how soon do you expect to marry?

1 ☐ I plan to marry this year.
2 ☐ I plan to marry next year.
3 ☐ I plan to marry within 3 years.
4 ☐ I plan to marry sometime in the future.
5 ☐ I do not expect to marry.
9

27. Do you still keep in touch with your high school friends?

YES
3 ☐ I keep in touch with almost all.
2 ☐ I keep in touch with many of them.
1 ☐ I keep in touch with one or two.
NO
0 ☐ I don't keep in touch with any of them.
9

28. Where are you living at the present time?

1 ☐ At home with my parents or guardian.
2 ☐ Some other place.
9

29. About how much time have you been sick at home or in a hospital during the past year?

00 ☐ None
01 ☐ Less than a week
02 ☐ 1 to 2 weeks
03 ☐ 3 to 5 weeks
04 ☐ 6 to 12 weeks
05 ☐ 3 to 4 months
06 ☐ 5 to 7 months
07 ☐ 8 to 11 months
08 ☐ The whole year
10

PLEASE DO NOT WRITE IN THIS AREA.

30. Were you the driver in an automobile accident involving bodily injury or more than $100 property damage since June, 1960?

1 ☐ Yes
0 ☐ No
9

31. Of which of the following are you now a member?

11 ☐ Air Force Reserve
12 ☐ Army Reserve
13 ☐ Naval Reserve
14 ☐ Marine Corps Reserve
15 ☐ Coast Guard Reserve
21 ☐ Air National Guard
22 ☐ Army National Guard
31 ☐ Air ROTC
32 ☐ Army ROTC
33 ☐ Naval ROTC
00 ☐ None of the above
00

32. Are you now on active duty in the military service?

11 ☐ Yes, Air Force
12 ☐ Yes, Army
13 ☐ Yes, Navy
14 ☐ Yes, Marine Corps
15 ☐ Yes, Coast Guard
06 ☐ No, but I have been on active duty.
07 ☐ No, but I expect to be drafted.
08 ☐ No, but I expect to enlist voluntarily.
00 ☐ No, and I do not expect to be.
99

PLEASE DO NOT WRITE IN THIS AREA.

33. Have you a military service serial number?

0 ☐ No
1 ☐ Yes, the number is ______________________
9

34. For how long have you VOLUNTEERED for ACTIVE DUTY in one of the armed services?

00 ☐ Not at all
01 ☐ 1 to 5 months
02 ☐ 6 months
03 ☐ 1 year
04 ☐ 2 years
05 ☐ 3 years
06 ☐ Minority enlistment
07 ☐ 4 years
08 ☐ 5 years
09 ☐ 6 years
(——) ☐ Other. Please specify: ______________________
10

PLEASE DO NOT WRITE IN THIS AREA.

35. During the past year to what extent has a car been available to you?

5 ☐ I had my own car.
4 ☐ A car was available whenever I wanted it.
3 ☐ A car was available most of the time.
2 ☐ A car was available occasionally.
1 ☐ I had practically no use of a car.
0 ☐ I do not drive.
9

36. Would you like to serve in the Peace Corps?

4 ☐ Yes, for a 4 year period
3 ☐ Yes, for a 3 year period
2 ☐ Yes, for a 2 year period
1 ☐ Yes, for a 1 year period
0 ☐ No
9

37. How have your views and plans changed during the past year? Please write a paragraph on this.

IF YOU HAVE NEVER ATTENDED COLLEGE DO NOT ANSWER THE REST OF THE QUESTIONS. PLEASE TURN IMMEDIATELY TO PAGE 7 WHERE THERE IS A SPACE FOR YOUR COMMENTS AND DIRECTIONS FOR RETURNING THIS BOOKLET.

PART IV. *COLLEGE*

PLEASE ANSWER THE QUESTIONS IN THIS SECTION IF YOU HAVE ATTENDED OR ARE ATTENDING A COLLEGE

38. Fill in the name and location of the college or university you are attending or the last one you attended.

College ____________

City ____________

State ____________

39. Approximately how far is the college from your home town?

____________ miles

40. As of June 1962 **how many college credits will you have? (Indicate on ONE of the two lines below.)**

2** ______ semester-hour credits

3** ______ quarter-hour credits

41. This question consists of the names of various subjects you may have studied in college. What were your grades in these subjects? Indicate as follows (showing your AVERAGE grade if you took more than one course in a subject):

Mark 4 for A
Mark 3 for B
Mark 2 for C
Mark 1 for D
Mark 0 for F
Mark 7 if you passed courses in this subject but specific grades are not reported in the college you attend
Mark 8 if you have taken no courses in this subject

PLEASE DO NOT WRITE IN THIS AREA.

• ____a. Mathematics
• ____b. Physical sciences (including astronomy, physics, chemistry, geology, etc.)
• ____c. Biological sciences (including botany, zoology, physiology, etc.)
• ____d. Social studies (including history, government, political science, civics, economics, geography, sociology, etc.)
• ____e. English composition and grammar
• ____f. English literature
• ____g. Foreign languages
• ____h. Fine Arts
• ____i. Music
• ____j. Psychology
• ____k. Philosophy
• ____l. Religion
• ____m. Education
• ____n. Engineering
• ____o. Business Administration
• ____p. Home Economics
• ____q. Agriculture and Forestry
• ____r. Other courses. Please specify:

____

• ____s. Average of marks in all courses
9

42. Did you take any college-preparatory mathematics (i.e., algebra, geometry, trigonometry, etc.) in high school?

☐ No
☐ Yes

If "yes", how many semesters of it did you complete?

________ semesters

43. Have you enrolled in any of the following kinds of mathematics courses in college: trigonometry, college algebra, analytic geometry, solid geometry, other college geometry, calculus, or a college mathematics course combining any of the above?

☐ Yes.
☐ No, but I plan to.
☐ No, and I don't expect to take any college mathematics.

44. In which of the following areas do you expect to specialize or "major" in college? Mark ONE even if you haven't made up your mind definitely. Please MARK ONLY ONE.

☐ Mathematics
☐ Physical Sciences
☐ Biological Sciences
☐ Social Studies
☐ English and Literature
☐ Foreign Languages
☐ Fine Arts
☐ Music
☐ Psychology
☐ Philosophy
☐ Religion
☐ Education
☐ Engineering
☐ Business and Commerce
☐ Home Economics
☐ Agriculture and Forestry
☐ Some other. Please specify:

____

45. Which of the following degrees do you plan to earn? Mark as many as apply.

☐ None
☐ B.A. or B.S.
☐ M.A. or M.S.
☐ Ph.D.
☐ Ed.D.
☐ LL.B.
☐ M.D.
☐ D.D.S.
☐ Other. Specify: ____________________

46. What is the main reason you went to college?

☐ College graduates make more money.
☐ The career I want to go into requires a college education.
☐ To make good personal contacts for business or an occupation.
☐ Because I enjoy learning.
☐ Because most of my friends do.
☐ For social reasons.
☐ To get into intercollegiate athletics.
☐ Because my parents wanted me to.
☐ No special reason.
☐ Other. Please specify: ____________________

____

47. Are you still in college?

☐ Yes.
☐ No. I dropped out.

If you dropped out of college, what was your main reason?

☐ I was offered a good job.
☐ I became homesick.
☐ I didn't enjoy the social life.
☐ I got married.
☐ College work was boring.
☐ I had to work too hard.
☐ I was afraid I was going to fail.
☐ I failed.
☐ Financial difficulties.
☐ I became ill.
☐ Family emergency.
☐ Some other reason. Please specify:

____

48. Where did you live while attending college?

☐ At home—within an hour's commuting time.
☐ At home—more than an hour's commuting time.
☐ In a college dormitory.
☐ In a fraternity or sorority house.
☐ Away from home in a rented room or apartment.
☐ Away from home with friends or relatives.

☐ Other. Please specify: ____________________

____

NOTICE

Your answers to these questions will be kept in complete confidence. When the findings are published neither you nor your school will be identified in any way.

For Questions 49 and 50 indicate how much your first year of college cost. Please include the full cost even if you obtained some of your money from scholarships or other sources.

49. For TUITION, FEES, and BOOKS.

01 ☐ Less than $50
02 ☐ $50-$99
03 ☐ $100-$199
04 ☐ $200-$299
05 ☐ $300-$499
06 ☐ $500-$749
07 ☐ $750-$999
08 ☐ $1000-$1499
09 ☐ $1500 or more
10

PLEASE DO NOT WRITE IN THIS AREA.

50. For LIVING EXPENSES only.

01 ☐ Less than $300
02 ☐ $300-$499
03 ☐ $500-$749
04 ☐ $750-$999
05 ☐ $1000-$1499
06 ☐ $1500-$1999
07 ☐ $2000-$2499
08 ☐ $2500-$2999
09 ☐ $3000 or more
10

51. Of the total amount of money you spent to attend college during the period June 1961 through May 1962, about how much came from each of the following sources? Please write in the amount to the nearest $50 in front of each source below:

$______ ① a. Loans from the National Defense Education Act Loan Fund.
$______ ② b. Loans from college loan funds.
— $______ ④ c. Loans from banks or other organizations.
$______ ① d. Loans from family or friends.
$______ ② e. Parents, family or sponsors.
— $______ ④ f. A trust fund.
$______ ① g. My own savings.
— $______ ② h. Working while attending college.
$______ ① i. Scholarships or grants from college attended.
— $______ ② j. Scholarships or grants from other sources.

PLEASE DO NOT WRITE IN THIS AREA.

52. While you were attending college, did you also hold a job most of the time?

1 ☐ Yes
0 ☐ No
9

53. What are your major plans for the summer of 1962? (Please mark only ONE.)

1 ☐ Work full-time (at least 35 hours a week)
2 ☐ Work part-time (less than 35 hours a week)
3 ☐ Vacation at a summer camp or resort
4 ☐ Travel
5 ☐ Take summer courses
6 ☐ Stay at home
(__)8 ☐ Other. Please specify: ________________

____
9

54. Indicate below how many hours a week, on the average, you spent in each of the following kinds of activities during your first year in college.

•• ____ hrs. per wk. a. Social activities, such as dating, going to parties, etc.
•• ____ hrs. per wk. b. Sports and athletics.
•• ____ hrs. per wk. c. Other extracurricular activities, such as clubs, student government, band, etc.
•• ____ hrs. per wk. d. Studying (outside of class).
•• ____ hrs. per wk. e. Earning money at a job.

PLEASE DO NOT WRITE IN THIS AREA.

55. Have you joined or pledged a social fraternity or sorority?

1 ☐ Yes, I am now an active member.
2 ☐ Yes, I am now a pledge.
3 ☐ Yes, I was pledged but have de-pledged.
4 ☐ Yes, I pledged, but was not elected to active membership.
5 ☐ No, I preferred not to join.
6 ☐ No, there are no fraternities or sororities on campus.
7 ☐ No, pledging occurs later at my college.
0

56. How well do you like college?

3 ☐ Very well
2 ☐ Fairly well
1 ☐ Not very well
0 ☐ Not at all
9

COMMENTS

Your comments and suggestions in connection with any part of this questionnaire are invited. If the space below is not sufficient an additional page may be enclosed with the booklet if desired.

____

____

____

____

Please sign your name on the line below:

____
(signature)

PLEASE CORRECT YOUR ADDRESS

Please correct your address, or name if you are now married, as it appears on the address label in the top section of page 8. This is to help us keep our address file up to date.

DIRECTIONS

When you have finished filling out the questions in the booklet, please fold the booklet so that the return address is on the outside and the panel containing your name is on the inside, then wet exposed tab and seal

Form 1-Ble

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PLEASE ANSWER ALL OF THE QUESTIONS THAT FOLLOW. WHEN YOU FINISH PLEASE REFOLD THE QUESTIONNAIRE WITH THE RETURN ADDRESS ON THE OUTSIDE, SEAL WITH THE TAB AND MAIL.

Name ______________________________

Address ______________________________

City ______________ Zone ____ State ________

Today's date ______________________________
Month Day Year

Date of Birth ______________________________
Month Day Year

1. Check one:

1 ☐ Male
2 ☐ Female
9

2. Are you married?

1 ☐ Yes
0 ☐ No
9

3. Did you graduate from high school?

1 ☐ No, I am still in high school.
2 ☐ No, I left without graduating.
3 ☐ Yes, I graduated ______________________
Month Year
9

4. Do you have a job?

2 ☐ Yes, a full-time job (35 hrs./wk.)
1 ☐ Yes, a part-time job (less than 35 hrs./wk.)
0 ☐ No
9

5. What is the job called?

____

____

6. What do you do on this job? Please be specific.

____

____

7. What is your pay (before deductions) on this job? Please fill in ONE of the lines below.

5**** $______________ per week

OR

1**** $______________ per month

00000

8. Are you looking for a job?

1 ☐ No, I have a job.
2 ☐ No, I am going to school and don't want a job.
3 ☐ No, I am a housewife and am not looking for an outside job.
4 ☐ No, I am not looking for a job for reasons other than those listed above.
5 ☐ Yes, I am looking for a job.
9

9. What is your Social Security number?
***
** ___ ___ ___ - ___ ___ - ___ ___ ___ ___
**** If none, check here ______

10. How did you get your first full-time job?

0 ☐ Through a friend or relative
1 ☐ Through my high school
2 ☐ Through another school
3 ☐ Through a union or bargaining group
4 ☐ Through the U. S. Employment Service
5 ☐ Through another public employment agency
6 ☐ Through a private employment agency
7 ☐ By answering an advertisement
8 ☐ By applying directly to a person or company that might be hiring.
(_) ☐ Other. Please specify ______________

____
9

11. What occupation or profession do you expect to make your career? Please be specific:

---- ______________________________

12. What kinds of school have you attended since leaving high school? (Mark as many as apply)

Z ☐ None
A ☐ A college offering bachelor's degree or higher
B ☐ A junior or community college
C ☐ A technical institute
D ☐ A school of nursing (3 year program)
J ☐ A school of practical nursing
K ☐ A business school
L ☐ A trade or apprentice school
M ☐ An armed forces enlisted man's school
R ☐ Other (please specify)
Z ______________________________

13. Of which of the following are you now a member?

11 ☐ Air Force Reserve
12 ☐ Army Reserve
13 ☐ Naval Reserve
14 ☐ Marine Corps Reserve
15 ☐ Coast Guard Reserve
21 ☐ Air National Guard
22 ☐ Army National Guard
31 ☐ Air ROTC
32 ☐ Army ROTC
33 ☐ Naval ROTC
00 ☐ None of the above
00

14. Are you now on active duty in the military service?

11 ☐ Yes, Air Force
12 ☐ Yes, Army
13 ☐ Yes, Navy
14 ☐ Yes, Marine Corps
15 ☐ Yes, Coast Guard
06 ☐ No, but I have been on active duty.
07 ☐ No, but I expect to be drafted.
08 ☐ No, but I expect to enlist voluntarily.
00 ☐ No, and I do not expect to be.
99

15. Have you a military service serial number? (Do not give your selective service number)

0 ☐ No
1 ☐ Yes, the number is ______________________
9

IF YOU HAVE NOT GONE TO COLLEGE PLEASE GO ON TO THE COMMENTS SECTION AT END OF NEXT PAGE.

FILL IN THE FOLLOWING QUESTIONS
ONLY IF YOU HAVE ATTENDED COLLEGE

PLEASE FILL IN THE NAME AND LOCATION OF THE COLLEGE OR UNIVERSITY YOU ARE ATTENDING OR THE LAST ONE YOU ATTENDED.

-- 16. College ____________________

City ____________________

State ____________________

17. When did you enter college for the first time?

____
Month Day Year

Indicate other colleges attended. Please give locations and dates.

____

____

18. Are you still in college?

A ☐ Yes
- ☐ No. I dropped out.

If you dropped out of college, what was your main reason?

K ☐ I was offered a good job.
L ☐ I became homesick.
M ☐ I didn't enjoy the social life.
N ☐ I got married.
O ☐ College work was boring.
P ☐ I had to study too hard.
R ☐ I was afraid I was going to fail.
S ☐ I failed.
T ☐ Financial difficulties
U ☐ I became ill.
V ☐ Family emergency
Z ☐ Some other reason. Please specify:

____

I

19. In which of the following areas do you expect to specialize or "major" in college? Mark ONE even if you haven't made up your mind definitely. Please MARK ONLY ONE.

A ☐ Mathematics
B ☐ Physical Sciences
C ☐ Biological Sciences
D ☐ Social Studies
F ☐ English and Literature
G ☐ Foreign Languages
H ☐ Fine Arts
I ☐ Music
J ☐ Psychology
K ☐ Philosophy
L ☐ Religion
M ☐ Education
N ☐ Engineering
O ☐ Business and Commerce
P ☐ Home Economics
R ☐ Nursing
Q ☐ Agriculture and Forestry
S ☐ Some other. Please specify:

____

Z

20. This question consists of the names of various subjects you may have studied in college. What were your grades in these subjects? Indicate as follows (showing your AVERAGE grade if you took more than one course in a subject):

Mark 4 for A
Mark 3 for B
Mark 2 for C
Mark 1 for D
Mark 0 for F
Mark 7 if you passed courses in this subject but specific grades are not reported in the college you attend
Mark 8 if you have taken no courses in this subject

*___a. Mathematics
*___b. Physical sciences (including astronomy, physics, chemistry, geology, etc.)
*___c. Biological sciences (including botany, zoology, physiology, etc.)
*___d. Social studies (including history, government, political science, civics, economics, geography, sociology, etc.)
*___e. English composition and grammar
*___f. English literature
*___g. Foreign languages
*___h. Fine Arts
*___i. Music
*___j. Psychology
*___k. Philosophy
*___l. Religion
*___m. Education
*___n. Engineering
*___o. Business administration
*___p. Home economics
*___q. Agriculture and forestry
*___r. Other courses. Please specify: ____________________

____

*___s. Over-all average of marks in all courses

9

21. As of June 1962 how many college credits will you have? (Indicate on ONE of the two lines below.)

2** ____________ semester-hour credits
3** ____________ quarter-hour credits

If your college does not give these units check here ______

COMMENTS SECTION

Your comments and suggestions in connection with any part of this questionnaire are invited. If the space below is not sufficient an additional page may be enclosed with the booklet if desired.

____

____

____

____

Please sign your name on the line below:

____
(signature)

THANK YOU. PLEASE FOLD THE QUESTIONNAIRE WITH THE RETURN ADDRESS ON THE OUTSIDE AND MAIL.

Form 1-B1a Copyright, 1962 University of Pittsburgh

AFTER YOU ANSWER THE QUESTIONS, PLEASE REFOLD THE BOOKLET WITH THE RETURN ADDRESS ON THE OUTSIDE, SEAL WITH THE TAB, AND MAIL.

Today's date ______ Month ______ Day ______ Year

Date of Birth ______ Month ______ Day ______ Year

PLEASE DO NOT WRITE IN THIS AREA

1. Check one:
1 ☐ Male
2 ☐ Female
9

2. Are you married?
1 ☐ Yes, I married while still in high school.
2 ☐ Yes, I married after leaving high school.
0 ☐ No.
9

3. Did you graduate from high school?
1 ☐ Yes.
2 ☐ No, but I am still in high school, and expect to graduate.
3 ☐ No, I am still in high school, but expect to leave without graduating.
4 ☐ No, I dropped out of high school without graduating.
9

4. If you dropped out of high school without graduating, what was the reason?
1 ☐ To get a job.
2 ☐ I became ill.
3 ☐ I was needed at home.
4 ☐ I got married.
5 ☐ I did not like school.
6 ☐ I had failing grades.
7 ☐ I was asked to leave.
8 ☐ I left for some other reason. (Please explain)
9

____

5. Have you a job (as of April 30, 1962)?
2 ☐ Yes, a full-time job (35 hrs./wk.)
1 ☐ Yes, a part-time job (less than 35 hrs./wk.)
0 ☐ No
9

6. What is (was) the job called?

____

7. What do (did) you do on this job? Please be specific.

____

8. What is (was) your pay (before deductions) on this job? Please fill in ONE of the lines below.

$**** $__________ per week

or

1**** $__________ per month
00000

PLEASE DO NOT WRITE IN THIS AREA

9. As of April 30, 1962 were you looking for a job?
1 ☐ Yes.
2 ☐ No, I had a job.
3 ☐ No, I was going to school and didn't want a job.
4 ☐ No, I am a housewife, and was not looking for an outside job.
5 ☐ No, my health would not permit it.
8 ☐ No, I was not looking for a job for reasons other than those listed above.
9

10. What is your Social Security number?
***
**
****
___ ___ ___ - ___ ___ - ___ ___ ___ ___

If none, check here __________

11. What occupation or profession do you plan to make your career? Be specific.

____

PLEASE DO NOT WRITE IN THIS AREA

12. What kinds of school have you attended since leaving high school? (Mark as many as apply.)
Z ☐ None
A ☐ A college offering bachelor's degree or higher
B ☐ A junior or community college
C ☐ A technical institute
D ☐ A school of nursing (3 year program)
J ☐ A school of practical nursing
K ☐ A secretarial or business school
L ☐ A trade or apprentice school
M ☐ An armed forces enlisted man's school
R ☐ Other (please specify)
Z ______________________________

13. Have you made any important decisions that you are sorry about now? (Mark as many as apply.)
☐ ① a. I am sorry I didn't go to college.
☐ ② b. I am sorry I started college.
☐ ④ c. I am sorry about the kind of work I decided to do.
☐ ⓪ d. None of the above.
—

14. Of which of the following are you now a member?
11 ☐ Air Force Reserve
12 ☐ Army Reserve
13 ☐ Naval Reserve
14 ☐ Marine Corps Reserve
15 ☐ Coast Guard Reserve
21 ☐ Air National Guard
22 ☐ Army National Guard
31 ☐ Air ROTC
32 ☐ Army ROTC
33 ☐ Naval ROTC
00 ☐ None of the above
00

PLEASE DO NOT WRITE IN THIS AREA

15. Are you now on active duty in the military service?
11 ☐ Yes, Air Force
12 ☐ Yes, Army
13 ☐ Yes, Navy
14 ☐ Yes, Marine Corps
15 ☐ Yes, Coast Guard
06 ☐ No, but I have been on active duty.
07 ☐ No, but I expect to be drafted.
08 ☐ No, but I expect to enlist voluntarily.
00 ☐ No, and I do not expect to be.
99

16. Have you a military serial number? (Do not give your selective service number.)
0 ☐ No
1 ☐ Yes, the number is__________________
9

17. Would you like to serve in the Peace Corps?
8 ☐ Yes, for a 4-year period
7 ☐ Yes, for a 3-year period
6 ☐ Yes, for a 2-year period
5 ☐ Yes, for a 1-year period
1 ☐ No, although I am familiar with it
0 ☐ No, I am not familiar with it
9

18. Have you attended college since leaving high school?
1 ☐ Yes, I am a full-time student.
2 ☐ Yes, I am a part-time student.
3 ☐ Yes, I entered but have dropped out temporarily.
4 ☐ Yes, I entered but dropped out and do not plan to return.
5 ☐ No, but I plan to enter college within a year or two.
6 ☐ No, but I plan to enter college eventually; I have no idea when.
7 ☐ No, and I have no plans to do so.
9

19. How have your views and plans changed during the past year? Please write a paragraph on this.

Start here. ______________________________

IF YOU HAVE NOT GONE TO COLLEGE PLEASE GO ON TO THE COMMENTS SECTION AT END OF NEXT PAGE.

PLEASE DO NOT WRITE IN THIS AREA

PLEASE ANSWER THE QUESTIONS IN THIS SECTION IF YOU HAVE ATTENDED OR ARE ATTENDING A COLLEGE OR UNIVERSITY.

20. Fill in the name and location of the college or university you are attending, or the last one you attended:

-- College ____________________

--- City ____________________

State ____________________

21. When did you enter college for the first time?

- ____________________
Month Year

22. If you have attended more than one college or university since leaving high school, please indicate below:

Name of college	City and State	Dates

23. Are you still in college?

A ☐ Yes.
- ☐ No. I dropped out.

If you dropped out of college, what was your main reason?

K ☐ I was offered a good job.
L ☐ I became homesick.
M ☐ I didn't enjoy the social life.
N ☐ I got married.
O ☐ College work was boring.
P ☐ I had to study too hard.
R ☐ I was afraid I was going to fail.
S ☐ I failed.
T ☐ Financial difficulties.
U ☐ I became ill.
V ☐ Family emergency.
Y ☐ Some other reason. Please specify:
Z
I ____________________

24. As of June 1962 how many college credits will you have? (Indicate on ONE of the two lines below.)

2** _____semester-hour or trimester-hour credits.
or
3** _____quarter-hour credits.
If your college does not use these units,
000 _____check at left.
999

25. In which of the following areas do you expect to specialize or "major" in college? Mark ONE even if you haven't made up your mind definitely. Please MARK ONLY ONE.

PLEASE DO NOT WRITE IN THIS AREA

A ☐ Mathematics
B ☐ Physical sciences
C ☐ Biological sciences
D ☐ Social studies
F ☐ English and literature
G ☐ Foreign languages
H ☐ Fine arts
I ☐ Music
J ☐ Psychology
K ☐ Philosophy
L ☐ Religion
M ☐ Education
N ☐ Engineering
O ☐ Business and commerce
P ☐ Home economics
Q ☐ Agriculture and forestry
R ☐ Nursing
Y ☐ Some other. Please specify:
Z ____________________

PLEASE DO NOT WRITE IN THIS AREA

26. This question consists of the names of various subjects you may have studied in college. What were your grades in these subjects? Indicate as follows (showing your AVERAGE grade if you took more than one course in a subject):

Mark 4 for A
Mark 3 for B
Mark 2 for C
Mark 1 for D
Mark 0 for F
Mark 7 if you passed courses in this subject but specific grades are not reported in the college you attend.
Mark 8 if you have taken no courses in this subject.

* _____a. Mathematics
* _____b. Physical sciences (including astronomy, physics, chemistry, geology, etc.)
* _____c. Biological sciences (including botany, zoology, physiology, etc.)
_____d. Social studies (including history, government, political science, civics, economics, geography, sociology, etc.)
* _____e. English composition and grammar
_____f. English literature
* _____g. Foreign languages
_____h. Fine arts
_____i. Music
_____j. Psychology
_____k. Philosophy
_____l. Religion
_____m. Education
_____n. Engineering
_____o. Business administration
_____p. Home economics
_____q. Agriculture and forestry
_____r. Nursing
_____y. Other courses. Please specify:
____
* _____z. Average of marks in all courses
9

PLEASE DO NOT WRITE IN THIS AREA

27. Which of the following college degrees or diplomas do you plan to earn? (Mark as many as apply.)

00 ☐ None
01 ☐ Associate in Arts (2 years)
10 ☐ B.A. or B.S.
20 ☐ M.A. or M.S.
31 ☐ Ph.D.
32 ☐ Ed.D. (education)
41 ☐ LL.B. (law)
42 ☐ M.D. (medicine)
43 ☐ D.D.S. (dentistry)
99 ☐ Other. Specify: ____________________
00

COMMENTS SECTION

Your comments and suggestions about this questionnaire are welcomed. If you need more space you may enclose another page with the booklet when you send it back to us.

____
____
____
____

Please sign your name on the line below:

____
(signature)

When you finish, please refold the booklet, with the return address on the outside. Then seal the booklet with the tab, and mail it. Thank you.

Form 1-83a

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March 1964

SPECIAL QUESTIONNAIRE FOR ELEVENTH-GRADE STUDENTS TESTED BY PROJECT TALENT

PLEASE DO NOT WRITE IN THIS AREA

1. Individual Identification

Name when tested ______________________________ Project TALENT testing number: __________
Last First Middle

Name at present: ______________________________

Present address: ______________________________
Street Address

____
City State

— — Date of birth: ______________________________ —
— — Month Day Year
— —

— 2. Check whether you are:
1 ☐ Male
2 ☐ Female
9

— 3. Did you graduate from high school?
1,2 ☐ Yes. Date: ______________________________
Month Year
5 ☐ No, I am still in high school in grade ______.
4,7 ☐ No, I dropped out in ______________________________
9 Month Year

— 4. If you dropped out, why did you do so?
1 ☐ I wanted to get a job.
2 ☐ I became ill.
3 ☐ I was needed at home.
4 ☐ I got married.
5 ☐ I did not like school.
6 ☐ I had failing grades.
7 ☐ I was asked to leave.
8 ☐ For some other reason: (specify) ______________________________
9

— 5. Are you now married?
☐ Yes. Date of marriage: ______________________________
Month Year
☐ No.

6. Were you ever married in the past even if you are not now married?
(0) ☐ Yes. Date of that marriage: ______________________________
(1) Month Year
(2) ☐ No.
9

PLEASE DO NOT WRITE IN THIS AREA

7. Did you have a job two years ago in April or May 1962?

☐ Yes.
☐ No.

If you answer "Yes," write in answers to the following:

8. How many hours per week did you work on it? ______________________

9. What was the job called? ______________________

10. What did you do on that job? ______________________

11. What occupation or profession do you now plan to made your career?

(Be specific.) ______________________

12. Have your plans for a career changed in the last two years?

☐ Yes. They definitely changed in ______________________
Month Year

☐ No.

If you answered "Yes," what occupation or profession did you first plan to make your career? ______________________

13. Have you attended any school since leaving high school?

☐ Yes.
Z ☐ No.

If you answered "Yes," fill in one or more of the following:

	Type	Date Began Attending
A	☐ A college offering the bachelor's degree or higher	Month Year
B	☐ A junior or community college offering not more than 2 years of work	Month Year
C	☐ A technical institute (not part of a college or university)	Month Year
D	☐ A school of nursing (3-year program)	Month Year
J	☐ A school of practical nursing	Month Year
K	☐ A secretarial or business school	Month Year
L	☐ A trade or apprentice school	Month Year
M	☐ An Armed-Forces enlisted-man's school	Month Year
N	☐ Other ______________	Month Year

14. If you attended any college, junior college, or community college since leaving high school, give the name and location, the dates of attendance, and check whether attendance was full time or part time.

Date

_______________ College ☐ Full time ☐ Part time From: _______________ To: _______________
_______________ City _______________ State

_______________ College ☐ Full time ☐ Part time From: _______________ To: _______________
_______________ City _______________ State

_______________ College ☐ Full time ☐ Part time From: _______________ To: _______________
_______________ City _______________ State

15. What was the area in which you expected or still expect to specialize or "major" in college? (Give one even if you haven't made up your mind definitely. Mark only one.)

A ☐ Mathematics
B ☐ Physical sciences
C ☐ Biological sciences
D ☐ Social studies
F ☐ English and literature
G ☐ Foreign languages
H ☐ Fine arts
I ☐ Music
J ☐ Psychology
K ☐ Philosophy
L ☐ Religion
M ☐ Education
N ☐ Engineering
O ☐ Business and commerce
P ☐ Home economics
Q ☐ Agriculture and forestry
R ☐ Nursing
Y ☐ Some other. Please specify: _______________
Z

PLEASE DO NOT WRITE IN THIS AREA

—
(A) 16. If you dropped out of college, what was your main reason?

K ☐ I was offered a good job.
L ☐ I became homesick.
M ☐ I didn't enjoy the social life.
N ☐ I got married.
O ☐ I found college work boring.
P ☐ I had to study too hard.
R ☐ I was afraid I was going to fail.
S ☐ I failed.
T ☐ I had financial difficulties.
U ☐ I became ill.
V ☐ There was an emergency in my family.
Y ☐ Some other reason. Please specify: ____________________
Z
—

17. Are you now in active military service?

		Date Service Began	
	☐ Yes.	Month	Year
11	☐ Air Force	________	________
12	☐ Army	________	________
13	☐ Navy	________	________
14	☐ Marine Corps	________	________
15	☐ Coast Guard	________	________
	☐ No.	Month	Year
06	☐ I finished active duty on	________	________
07	☐ I expect to be drafted in	________	________
08	☐ I expect to enlist voluntarily in	________	________
00	☐ I have never been and don't expect to be in active military service.		
99			

---

18. Name (or names) of person (or persons) from whom data about the individual were obtained:

Name	Relationship to Individual
____________________	____________________
____________________	____________________
____________________	____________________

19. Name of person who filled out the questionnaire:

____
Signature

____
Date completed

____
Title

Appendix B

Table B-1

Means and Standard Deviations of Selected Project TALENT Test Variables and Occupational Groups (Males)

OCCUPATION		WEIGHTED	R-107		R-110		R-111		R-112		R-139		R-190		R-192		R-220	
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Drafts-man	1	1,144	10.2	3.4	5.4	2.2	11.8	3.9	14.3	2.3	5.2	1.7	158.1	28.4	73.8	15.2	17.0	7.0
	2	1,185	10.5	3.8	5.2	2.4	10.6	4.1	13.8	3.2	4.8	1.8	153.5	35.2	69.6	17.0	15.1	6.2
	3	10,116	10.9	3.8	5.7	2.4	11.4	4.6	13.9	3.0	4.9	1.7	156.0	32.2	70.7	16.3	15.4	6.4
Farmer	1	2,662	8.3	3.6	3.9	2.0	9.1	3.8	13.3	2.4	4.1	1.5	133.8	29.8	59.2	13.9	11.8	6.2
	2	1,052	8.0	3.6	3.9	2.2	7.7	4.3	12.1	3.5	3.7	1.8	122.9	33.7	52.7	19.2	12.2	5.4
	3	4,331	8.0	3.5	3.7	2.2	8.6	3.3	12.7	3.0	4.1	1.7	128.4	29.2	57.7	14.8	11.6	5.7
Business man	1	392	8.7	3.7	4.7	2.1	9.5	4.2	12.9	3.1	4.9	1.7	139.7	29.8	65.7	18.3	13.0	5.9
	2	1,053	9.7	3.9	5.1	2.7	10.5	4.2	13.6	3.3	5.1	1.9	153.1	33.5	72.2	16.5	15.2	6.3
	3	3,199	8.9	3.6	4.7	2.3	9.1	3.9	12.7	3.4	4.9	1.8	142.8	30.5	68.4	15.4	15.0	6.
Book-keeper	1	548	10.1	3.2	4.9	2.1	9.1	3.1	12.0	2.3	4.9	2.2	143.8	24.9	69.3	15.5	15.7	5.4
	2	341	9.5	3.7	4.4	1.8	8.1	4.1	12.7	2.7	5.2	1.5	145.2	24.2	70.3	12.1	17.2	7.2
	3	4,303	9.3	3.6	4.4	2.2	9.0	3.5	12.6	3.1	5.3	1.8	145.6	28.7	68.5	14.9	15.5	5.9

1 = Those "in" job planning to remain in that career

2 = Those "in" job planning a career in a different area

3 = Those planning a career in this area, but presently employed elsewhere

Table B-1 (Continued)

OCCUPATION		WEIGHTED	R-230		R-240		R-250		R-260		R-270		R-282		R-290		R-340	
		N	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.	X̄	S.D.
Drafts-man	1	1,144	83.5	8.4	10.8	5.0	32.0	9.0	10.1	3.4	14.9	2.8	10.5	3.2	10.5	2.6	27.6	8.7
	2	1,185	82.4	9.4	9.3	5.2	32.8	10.0	9.9	3.8	14.2	3.5	10.2	3.1	9.8	2.8	25.8	8.9
	3	10,116	82.5	11.1	10.3	4.9	32.7	9.6	10.4	4.0	14.6	3.5	10.5	3.0	10.0	2.5	26.6	9.5
Farmer	1	2,662	75.9	11.4	8.2	4.4	25.7	9.7	8.4	4.1	13.3	3.9	8.6	3.6	8.4	3.0	21.2	7.8
	2	1,052	73.9	12.9	8.0	4.0	25.8	11.3	7.4	3.3	12.3	4.1	8.2	3.1	8.3	2.9	20.6	7.0
	3	4,331	75.2	12.9	7.9	4.1	25.8	8.9	8.3	3.1	12.7	3.8	8.9	2.9	8.3	3.2	19.8	7.1
Business man	1	892	80.9	10.6	8.0	4.2	29.2	9,0	10.1	4.0	13.6	3.7	9.5	2.9	8.5	2.9	22.0	8.5
	2	1,053	81.2	10.9	9.4	4.0	32.1	8.7	10.5	3.6	13.5	2.8	9.8	3.2	9.7	2.6	25.4	8.7
	3	8,199	80.0	13.3	8.9	4.9	30.7	9.5	9.5	3.9	12.6	3.7	8.8	3.2	9.4	2.7	22.4	8.5
Book-keeper	1	548	81.9	8.8	10.5	4.8	32.2	8.6	9.6	3.3	11.5	2.8	8.5	2.6	8.9	2.3	22.9	7.3
	2	841	82.9	6.3	8.7	4.6	33.5	6.8	10.3	3.9	12.1	3.5	9.1	2.7	9.6	2.0	23.3	7.5
	3	4,303	81.1	10.9	9.7	4.6	31.2	9.2	9.6	3.3	12.3	3.7	9.2	3.4	9.5	2.7	25.1	8.5

1 = Those "in" job planning to remain in that career

2 = Those "in" job planning a career in a different area

3 = Those planning a career in this area, but presently employed elsewhere

Table B-1 (Continued)

OCCUPATION		WEIGHTED N	R-107 X̄	R-107 S.D.	R-110 X̄	R-110 S.D.	R-111 X̄	R-111 S.D.	R-112 X̄	R-112 S.D.	R-139 X̄	R-139 S.D.	R-190 X̄	R-190 S.D.	R-192 X̄	R-192 S.D.	R-220 X̄	R-220 S.D.
Clerical	1	1,625	9.3	3.7	4.8	2.1	9.7	4.1	12.4	3.5	5.0	1.8	144.2	33.0	70.3	15.2	14.5	7.5
worker	2	18,961	9.3	3.8	4.8	2.4	9.5	4.2	12.4	3.4	4.8	1.8	142.5	32.6	67.0	16.4	14.5	6.9
	3	1,943	8.5	3.6	4.4	2.3	9.0	4.0	13.0	3.1	4.7	1.9	139.9	29.5	67.8	14.4	15.3	6.9
Sales-	1	501	8.7	4.1	4.6	2.4	10.4	3.9	12.5	2.8	5.2	2.1	133.1	29.4	62.7	14.4	12.3	4.6
clerk	2	5,829	9.0	4.0	4.6	2.2	9.4	4.3	12.6	3.3	4.9	1.8	142.7	33.3	67.6	16.3	14.6	7.2
	3	340	8.1	3.7	4.0	2.0	9.7	3.7	12.6	2.7	5.1	1.8	138.0	25.6	64.5	12.3	13.6	6.8
Military	1	2,331	10.7	3.7	5.6	2.4	10.6	3.7	13.4	3.0	5.0	1.8	153.9	32.0	72.3	16.9	15.5	6.6
Service-	2	25,097	9.7	3.7	5.0	2.3	10.2	4.1	13.2	3.1	4.7	1.8	144.9	31.8	68.1	16.3	14.6	6.5
man	3	2,059	9.0	4.2	4.5	2.6	8.9	4.4	11.7	3.9	4.7	1.8	133.6	40.4	62.6	19.1	13.6	7.4
Elec-	1	2,337	11.3	3.7	5.9	2.2	13.0	4.3	14.3	2.6	4.7	1.7	156.5	29.8	70.7	16.4	14.7	6.3
trician	2	2,420	11.1	3.9	5.8	2.3	12.4	4.4	13.8	3.3	4.8	1.8	155.9	32.0	70.3	15.7	15.1	6.8
	3	7,614	10.2	3.8	5.4	2.3	11.5	4.7	13.7	3.3	4.5	1.9	147.9	33.0	67.1	16.4	14.7	6.1
Mechanic	1	3,154	8.9	3.7	4.8	2.3	10.7	4.1	13.9	3.1	4.6	1.8	139.2	30.8	63.8	16.2	14.0	6.2
	2	4,535	9.6	3.6	5.1	2.3	10.2	4.1	13.6	3.1	4.7	1.8	145.5	30.1	67.4	15.6	14.4	6.4
	3	5,812	8.5	3.5	4.6	2.1	9.9	3.7	13.6	3.1	4.3	1.7	133.7	30.2	61.0	16.2	13.1	6.3

Table B-1 (Continued)

OCCUPATION		WEIGHTED N	R-230		R-240		R-250		R-260		R-270		R-282		R-290		R-340	
			$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Clerical worker	1	1,625	80.3	10.2	8.9	4.5	32.4	9.0	9.0	4.0	12.3	4.0	9.0	3.2	9.0	2.8	22.2	8.0
	2	18,961	78.8	12.9	8.8	4.6	30.1	9.8	9.2	3.8	12.5	3.9	9.0	3.3	9.1	2.8	22.1	8.5
	3	1,943	79.9	9.3	8.1	4.8	29.4	9.6	9.0	4.0	12.3	4.1	9.0	3.4	8.7	3.0	21.4	7.1
Sales-clerk	1	501	75.2	7.9	8.3	3.8	26.3	9.3	8.0	3.6	11.4	3.6	8.6	2.1	8.0	3.3	18.8	7.8
	2	5,829	79.3	13.7	9.2	5.2	30.8	10.5	9.2	4.0	12.5	4.1	9.1	3.5	9.0	2.9	22.9	9.4
	3	340	79.2	10.5	8.4	3.7	30.8	7.0	9.3	3.5	12.9	4.0	9.4	3.5	8.5	2.8	20.5	6.9
Military Service-man	1	2,331	80.0	13.4	9.5	4.7	32.9	9.3	9.9	3.8	13.5	3.6	9.5	3.4	9.5	2.7	23.5	9.3
	2	25,097	78.7	11.6	8.7	4.5	30.7	9.8	9.6	4.1	13.6	3.7	9.6	3.2	9.3	2.7	22.4	8.3
	3	2,059	75.7	16.8	1 9.0	5.3	28.8	12.1	8.2	4.2	11.8	5.4	8.6	3.8	8.3	3.2	21.4	8.9
Elec-trician	1	2,337	79.9	10.1	9.6	4.3	32.1	9.5	9.8	4.0	14.4	3.4	10.4	2.8	10.0	2.5	25.4	8.7
	2	2,420	82.7	10.5	10.3	4.9	32.0	10.2	10.2	3.8	14.6	4.2	10.8	3.5	9.9	2.8	26.6	9.8
	3	7,614	78.7	13.0	9.0	4.7	31.1	9.5	10.0	4.0	13.8	3.8	9.9	3.1	9.3	2.7	23.2	9.2
Mechanic	1	3,154	76.8	10.7	7.7	3.7	28.7	8.8	9.9	3.5	14.0	3.5	9.9	3.0	9.1	2.5	21.1	7.1
	2	4,535	78.6	11.0	9.1	4.4	30.4	9.9	9.7	4.0	13.7	3.7	9.6	3.2	9.0	2.7	22.6	8.8
	3	5,812	75.4	11.0	7.6	4.0	26.8	9.7	9.1	4.0	13.5	3.7	9.3	3.2	8.2	2.9	20.1	7.2

Table B-1 (Continued)

OCCUPATION		WEIGHTED N	R-107		R-110		R-111		R-112		R-139		R-190		R-192		R-220	
			$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Machinist	1	1,208	8.7	3.1	4.6	2.0	9.6	3.9	13.3	2.9	4.6	1.9	138.1	25.4	64.1	14.3	13.8	5.9
	2	1,519	9.9	3.8	5.3	2.3	10.3	3.7	14.0	2.6	4.6	1.6	148.0	30.6	68.0	15.6	13.6	6.1
	3	1,444	9.7	3.7	4.9	2.3	10.5	4.1	13.6	3.3	4.9	1.7	142.4	34.7	65.3	15.3	14.6	6.2
Carpenter	1	620	8.6	3.2	4.2	2.0	9.4	3.7	13.8	3.0	4.6	1.6	132.7	27.9	62.2	15.9	13.8	6.1
	2	1,700	9.0	3.7	4.2	2.3	9.6	3.5	13.3	3.2	3.9	1.9	138.2	32.6	62.9	16.8	13.8	6.0
	3	510	6.5	3.2	3.7	2.3	9.1	3.9	12.1	3.5	4.4	1.5	122.2	30.6	57.5	13.7	9.9	5.6
Metal Trades worker	1	700	8.4	3.9	4.9	1.9	9.1	3.4	13.6	2.6	4.8	1.9	136.1	25.0	66.0	12.4	12.8	4.8
	2	1,578	8.8	3.7	4.5	2.3	9.3	3.8	13.2	3.4	4.4	1.7	135.4	37.5	63.6	15.2	13.4	5.6
	3	658	8.0	3.6	4.4	2.0	8.6	4.2	13.2	3.2	4.3	1.9	130.0	32.2	59.9	15.8	11.2	6.5
Service Worker	1	656	6.8	3.2	3.4	2.7	7.2	2.9	10.4	3.8	3.7	2.0	114.6	28.9	53.9	16.5	10.1	5.8
	2	9,639	8.8	3.8	4.6	2.3	9.0	4.3	12.3	3.6	4.4	1.8	135.5	35.4	62.8	17.5	13.9	7.2
	3	891	7.0	3.2	4.1	1.9	7.1	2.6	10.8	3.2	3.8	1.6	122.1	32.0	56.3	15.8	12.6	6.9
Laborer	1	1,444	7.5	3.7	3.8	2.0	8.6	4.1	12.2	3.6	3.8	1.8	123.7	32.6	56.2	19.7	11.2	5.2
	2	20,246	8.7	3.9	4.3	2.3	8.9	4.1	12.7	3.3	4.3	1.8	135.5	34.0	62.2	16.2	13.3	6.5
	3	557	7.3	2.7	4.3	2.5	8.1	3.5	12.1	3.4	4.3	1.4	127.3	31.4	59.5	13.3	11.6	5.4

Table B-1 (Continued)

OCCUPATION		WEIGHTED	R-230		R-240		R-250		R-260		R-270		R-282		R-290		R-340	
		N	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Machinist	1	1,208	79.3	9.7	9.4	4.2	28.6	8.1	10.3	4.2	13.8	4.0	10.1	3.4	9.9	2.4	22.5	7.2
	2	1,519	80.3	10.8	9.5	4.9	31.5	9.6	10.6	3.7	14.4	3.6	9.7	3.5	9.6	2.4	24.6	9.2
	3	1,444	76.7	12.2	8.1	4.0	29.8	9.1	9.7	4.3	14.3	3.7	10.5	3.3	9.3	3.0	21.9	8.2
Carpenter	1	620	78.2	9.4	8.2	3.5	28.1	9.2	9.7	4.3	13.6	3.2	10.2	2.9	9.9	2.3	20.6	6.3
	2	1,700	78.0	11.2	8.4	4.9	28.4	10.5	9.3	4.1	13.0	4.1	9.9	3.2	9.1	3.0	22.4	7.5
	3	510	72.8	9.6	6.6	3.3	24.0	9.6	8.8	3.9	11.3	4.1	9.3	3.7	8.7	2.3	18.5	5.5
Metal Trades worker	1	700	76.6	9.8	7.4	3.8	30.4	8.4	8.7	3.1	13.7	2.6	9.5	3.3	9.3	2.7	20.9	6.9
	2	1,578	76.9	14.0	8.3	4.3	30.1	8.7	9.4	3.8	13.8	3.5	9.2	2.7	8.8	2.9	21.4	7.8
	3	658	72.8	10.7	9.0	4.0	24.8	9.1	8.1	4.3	12.6	3.8	9.0	2.9	8.6	3.1	19.9	8.2
Service Worker	1	656	70.6	11.7	7.1	3.8	21.8	8.7	6.8	3.6	10.6	3.7	7.8	2.7	7.5	3.4	17.2	6.7
	2	9,639	77.4	12.9	8.4	4.4	28.3	10.5	8.7	4.0	12.4	4.0	8.9	3.4	8.8	3.1	21.7	8.4
	3	891	74.1	10.6	8.0	4.1	23.4	10.0	7.4	3.1	10.6	4.1	8.3	3.0	8.6	3.0	18.5	6.4
Laborer	1	1,444	71.8	10.8	6.7	3.6	25.2	10.7	8.3	3.7	11.5	4.0	8.4	3.3	7.8	3.4	19.2	8.3
	2	20,246	77.6	11.7	8.7	4.6	28.4	10.1	8.8	3.9	12.6	4.0	8.8	3.3	8.7	3.0	21.4	8.5
	3	557	72.9	10.2	6.1	3.3	24.3	7.8	8.2	3.6	12.7	3.3	8.0	3.4	8.2	2.7	18.1	6.5